1 Mg 4-3-01

SEP 2 TAMP SO JULIAN TO THE TOTAL PROPERTY OF THE PROPERTY OF

SEQUENCE LISTING

<110> Hayden, Michael R. Brooks-Wilson, Angela R. Pimstone, Simon N.

<120> METHODS AND REAGENTS FOR MODULATING CHOLESTEROL LEVELS

<130> 50110/002005

<140> US 09/526,193

<141> 2000-03-15

<150> 60/124,702

<151> 1999-03-15

<150> 60/138,048

<151> 1999-06-08

<150> 60/139,600

<151> 1999-06-17

<150> 60/151,977

<151> 1999-09-01

<160> 287

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2261

<212> PRT

<213> Homo sapiens

<400> 1

Met Ala Cys Trp Pro Gln Leu Arg Leu Leu Trp Lys Asn Leu Thr 1 5 10 15

Phe Arg Arg Gln Thr Cys Gln Leu Leu Leu Glu Val Ala Trp Pro 20 25 30

Leu Phe Ile Phe Leu Ile Leu Ile Ser Val Arg Leu Ser Tyr Pro Pro 35 40 45

Tyr Glu Gln His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala 50 55 60

Gly Thr Leu Pro Trp Val Gln Gly Ile Ile Cys Asn Ala Asn Asn Pro 65 70 75 80

Cys Phe Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn

Phe Asn Lys Ser Ile Val Ala Arg Leu Phe Ser Asp Ala Arg Arg Leu
100 105 110

Leu Leu Tyr Ser Gln Lys Asp Thr Ser Met Lys Asp Met Arg Lys Val

Leu Arg Thr Leu Gln Gln Ile Lys Lys Ser Ser Ser Asn Leu Lys Leu



Gln Asp Phe Leu Val Asp Asn Glu Thr Phe Ser Gly Phe Leu Tyr His Asn Leu Ser Leu Pro Lys Ser Thr Val Asp Lys Met Leu Arg Ala Asp Val Ile Leu His Lys Val Phe Leu Gln Gly Tyr Gln Leu His Leu Thr Ser Leu Cys Asn Gly Ser Lys Ser Glu Glu Met Ile Gln Leu Gly Asp Gln Glu Val Ser Glu Leu Cys Gly Leu Pro Arg Glu Lys Leu Ala Ala Ala Glu Arg Val Leu Arg Ser Asn Met Asp Ile Leu Lys Pro Ile Leu Arg Thr Leu Asn Ser Thr Ser Pro Phe Pro Ser Lys Glu Leu Ala Glu Ala Thr Lys Thr Leu Leu His Ser Leu Gly Thr Leu Ala Gln Glu Leu Phe Ser Met Arg Ser Trp Ser Asp Met Arg Gln Glu Val Met Phe Leu Thr Asn Val Asn Ser Ser Ser Ser Thr Gln Ile Tyr Gln Ala Val Ser Arg Ile Val Cys Gly His Pro Glu Gly Gly Gly Leu Lys Ile Lys Ser Leu Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Leu Phe Gly Gly Asn Gly Thr Glu Glu Asp Ala Glu Thr Phe Tyr Asp Asn Ser Thr Thr Pro Tyr Cys Asn Asp Leu Met Lys Asn Leu Glu Ser Ser Pro Leu Ser Arg Ile Ile Trp Lys Ala Leu Lys Pro Leu Leu Val Gly Lys Ile Leu Tyr Thr Pro Asp Thr Pro Ala Thr Arg Gln Val Met Ala Glu Val Asn Lys Thr Phe Gln Glu Leu Ala Val Phe His Asp Leu Glu Gly Met Trp Glu Glu Leu Ser Pro Lys Ile Trp Thr Phe Met Glu Asn Ser Gln Glu Met Asp Leu Val Arg Met Leu Leu Asp Ser Arg Asp Asn Asp His Phe Trp Glu Gln Gln Leu Asp Gly Leu Asp Trp Thr Ala Gln Asp Ile Val Ala Phe Leu Ala Lys His Pro Glu Asp Val Gln Ser Ser Asn Gly Ser Val Tyr Thr Trp Arg Glu Ala Phe Asn Glu Thr Asn Gln Ala Ile Arg Thr Ile Ser Arg Phe Met Glu Cys Val Asn Leu Asn Lys Leu Glu Pro Ile Ala Thr Glu Val Trp Leu Ile Asn Lys Ser Met Glu Leu Leu Asp Glu Arg Lys Phe Trp Ala Gly Ile Val Phe Thr Gly Ile Thr Pro Gly Ser Ile Glu Leu Pro His His Val Lys Tyr Lys Ile Arg Met Asp Ile Asp Asn Val Glu Arg Thr Asn Lys Ile Lys Asp Gly Tyr Trp Asp Pro

-2-

565 570 Gly Pro Arg Ala Asp Pro Phe Glu Asp Met Arg Tyr Val Trp Gly Gly 585 Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile Ile Arg Val Leu 600 Thr Gly Thr Glu Lys Lys Thr Gly Val Tyr Met Gln Gln Met Pro Tyr 615 620 Pro Cys Tyr Val Asp Asp Ile Phe Leu Arg Val Met Ser Arg Ser Met 635 630 Pro Leu Phe Met Thr Leu Ala Trp Ile Tyr Ser Val Ala Val Ile Ile 645 650 Lys Gly Ile Val Tyr Glu Lys Glu Ala Arg Leu Lys Glu Thr Met Arg 660 665 Ile Met Gly Leu Asp Asn Ser Ile Leu Trp Phe Ser Trp Phe Ile Ser 680 Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu Val Val Ile Leu 695 Lys Leu Gly Asn Leu Leu Pro Tyr Ser Asp Pro Ser Val Val Phe Val 710 715 Phe Leu Ser Val Phe Ala Val Val Thr Ile Leu Gln Cys Phe Leu Ile 730 725 Ser Thr Leu Phe Ser Arg Ala Asn Leu Ala Ala Ala Cys Gly Gly Ile 740 745 Ile Tyr Phe Thr Leu Tyr Leu Pro Tyr Val Leu Cys Val Ala Trp Gln 760 Asp Tyr Val Gly Phe Thr Leu Lys Ile Phe Ala Ser Leu Leu Ser Pro 775 Val Ala Phe Gly Phe Gly Cys Glu Tyr Phe Ala Leu Phe Glu Glu Gln 790 795 Gly Ile Gly Val Gln Trp Asp Asn Leu Phe Glu Ser Pro Val Glu Glu 805 810 Asp Gly Phe Asn Leu Thr Thr Ser Val Ser Met Met Leu Phe Asp. Thr 825 Phe Leu Tyr Gly Val Met Thr Trp Tyr Ile Glu Ala Val Phe Pro Gly 840 845 Gln Tyr Gly Ile Pro Arg Pro Trp Tyr Phe Pro Cys Thr Lys Ser Tyr 855 Trp Phe Gly Glu Glu Ser Asp Glu Lys Ser His Pro Gly Ser Asn Gln 870 Lys Arq Ile Ser Glu Ile Cys Met Glu Glu Glu Pro Thr His Leu Lys 890 Leu Gly Val Ser Ile Gln Asn Leu Val Lys Val Tyr Arg Asp Gly Met 905 900 Lys Val Ala Val Asp Gly Leu Ala Leu Asn Phe Tyr Glu Gly Gln Ile 920 Thr Ser Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Met Ser 935 940 Ile Leu Thr Gly Leu Phe Pro Pro Thr Ser Gly Thr Ala Tyr Ile Leu 955 Gly Lys Asp Ile Arg Ser Glu Met Ser Thr Ile Arg Gln Asn Leu Gly 970 965 Val Cys Pro Gln His Asn Val Leu Phe Asp Met Leu Thr Val Glu Glu 985 His Ile Trp Phe Tyr Ala Arg Leu Lys Gly Leu Ser Glu Lys His Val





Lys Ala Glu Met Glu Gln Met Ala Leu Asp Val Gly Leu Pro Ser Ser Lys Leu Lys Ser Lys Thr Ser Gln Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val Ala Leu Ala Phe Val Gly Gly Ser Lys Val Val Ile Leu Asp Glu Pro Thr Ala Gly Val Asp Pro Tyr Ser Arg Arg Gly Ile Trp Glu Leu Leu Lys Tyr Arg Gln Gly Arg Thr Ile Ile Leu Ser Thr His His Met Asp Glu Ala Asp Val Leu Gly Asp Arg Ile Ala Ile Ile Ser His Gly Lys Leu Cys Cys Val Gly Ser Ser Leu Phe Leu Lys Asn Gln Leu Gly Thr Gly Tyr Tyr Leu Thr Leu Val Lys Lys Asp Val Glu Ser Ser Leu Ser Ser Cys Arg Asn Ser Ser Ser Thr Val Ser Tyr Leu Lys Lys Glu Asp Ser Val Ser Gln Ser Ser Ser Asp Ala Gly Leu Gly Ser Asp His Glu Ser Asp Thr Leu Thr Ile Asp Val Ser Ala Ile Ser Asn Leu Ile Arg Lys His Val Ser Glu Ala Arg Leu Val Glu Asp Ile Gly His Glu Leu Thr Tyr Val Leu Pro Tyr Glu Ala Ala Lys Glu Gly Ala Phe Val Glu Leu Phe His Glu Ile Asp Asp Arg Leu Ser Asp Leu Gly Ile Ser Ser Tyr Gly Ile Ser Glu Thr Thr Leu Glu Glu Ile Phe Leu Lys Val Ala Glu Glu Ser Gly Val Asp Ala Glu Thr Ser Asp Gly Thr Leu Pro Ala Arg Arg Asn Arg Arg Ala Phe Gly Asp Lys Gln Ser Cys Leu Arg Pro Phe Thr Glu Asp Asp Ala Ala Asp Pro Asn Asp Ser Asp Ile Asp Pro Glu Ser Arg Glu Thr Asp Leu Leu Ser Gly Met Asp Gly Lys Gly Ser Tyr Gln Val Lys Gly Trp Lys Leu Thr Gln Gln Gln Phe Val Ala Leu Leu Trp Lys Arg Leu Leu Ile Ala Arg Arg Ser Arg Lys Gly Phe Phe Ala Gln Ile Val Leu Pro Ala Val Phe Val Cys Ile Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly Lys Tyr Pro Ser Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu Gln Tyr Thr Phe Val Ser Asn Asp Ala Pro Glu Asp Thr Gly Thr Leu Glu Leu Leu Asn Ala Leu Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys Met Glu Gly Asn Pro Ile Pro Asp Thr Pro Cys Gln Ala Gly Glu Glu Glu Trp Thr Ala Pro







Val Pro Gln Thr Ile Met Asp Leu Phe Gln Asn Gly Asn Trp Thr Met Gln Asn Pro Ser Pro Ala Cys Gln Cys Ser Ser Asp Lys Ile Lys Lys Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu Pro Pro Pro Gln Arg Lys Gln Asn Thr Ala Asp Ile Leu Gln Asp Leu Thr Gly Arg Asn Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val Gln Ile Ile Ala Lys Ser Leu Lys Asn Lys Ile Trp Val Asn Glu Phe Arg Tyr Gly Gly Phe Ser Leu Gly Val Ser Asn Thr Gln Ala Leu Pro Pro Ser Gln Glu Val Asn Asp Ala Ile Lys Gln Met Lys Lys His Leu Lys Leu Ala Lys Asp Ser Ser Ala Asp Arg Phe Leu Asn Ser Leu Gly Arg Phe Met Thr Gly Leu Asp Thr Arg Asn Asn Val Lys Val Trp Phe Asn Asn Lys Gly Trp His Ala Ile Ser Ser Phe Leu Asn Val Ile Asn Asn Ala Ile Leu Arg Ala Asn Leu Gln Lys Gly Glu Asn Pro Ser His Tyr Gly Ile Thr Ala Phe Asn His Pro Leu Asn Leu Thr Lys Gln Gln Leu Ser Glu Val Ala Leu Met Thr Thr Ser Val Asp Val Leu Val Ser Ile Cys Val Ile Phe Ala Met Ser Phe Val Pro Ala Ser Phe Val Val Phe Leu Ile Gln Glu Arg Val Ser Lys Ala Lys His Leu Gln Phe Ile Ser Gly Val Lys Pro Val Ile Tyr Trp Leu Ser Asn Phe Val Trp Asp Met Cys Asn Tyr Val Val Pro Ala Thr Leu Val Ile Ile Ile Phe Ile Cys Phe Gln Gln Lys Ser Tyr Val Ser Ser Thr Asn Leu Pro Val Leu Ala Leu Leu Leu Leu Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Val Phe Lys Ile Pro Ser Thr Ala Tyr Val Val Leu Thr Ser Val Asn Leu Phe Ile Gly Ile Asn Gly Ser Val Ala Thr Phe Val Leu Glu Leu Phe Thr Asp Asn Lys Leu Asn Asn Ile Asn Asp Ile Leu Lys Ser Val Phe Leu Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Lys Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly Glu Asn Arg Phe Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg Asn Leu Phe Ala Met Ala Val Glu Gly Val Val Phe Phe Leu Ile Thr Val Leu Ile Gln Tyr





Arg Phe Phe Ile Arg Pro Arg Pro Val Asn Ala Lys Leu Ser Pro Leu Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln Arg Ile Leu Asp Gly Gly Gln Asn Asp Ile Leu Glu Ile Lys Glu Leu Thr Lys Ile Tyr Arg Arg Lys Arg Lys Pro Ala Val Asp Arg Ile Cys Val Gly Ile Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Ser Ser Thr Phe Lys Met Leu Thr Gly Asp Thr Thr Val Thr Arg Gly Asp Ala Phe Leu Asn Lys Asn Ser Ile Leu Ser Asn Ile His Glu Val His Gln Asn Met Gly Tyr Cys Pro Gln Phe Asp Ala Ile Thr Glu Leu Leu Thr Gly Arg Glu His Val Glu Phe Phe Ala Leu Leu Arg Gly Val Pro Glu Lys Glu Val Gly Lys Val Gly Glu Trp Ala Ile Arg Lys Leu Gly Leu Val Lys Tyr Gly Glu Lys Tyr Ala Gly Asn Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ser Thr Ala Met Ala Leu Ile Gly Gly Pro Pro Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Lys Ala Arg Arg Phe Leu Trp Asn Cys Ala Leu Ser Val Val Lys Glu Gly Arg Ser Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr Arg Met Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Val Gln His Leu Lys Asn Arg Phe Gly Asp Gly Tyr Thr Ile Val Val Arg Ile Ala Gly Ser Asn Pro Asp Leu Lys Pro Val Gln Asp Phe Phe Gly Leu Ala Phe Pro Gly Ser Val Leu Lys Glu Lys His Arg Asn Met Leu Gln Tyr Gln Leu Pro Ser Ser Leu Ser Ser Leu Ala Arg Ile Phe Ser Ile Leu Ser Gln Ser Lys Lys Arg Leu His Ile Glu Asp Tyr Ser Val Ser Gln Thr Thr Leu Asp Gln Val Phe Val Asn Phe Ala Lys Asp Gln Ser Asp Asp Asp His Leu Lys Asp Leu Ser Leu His Lys Asn Gln Thr Val Val Asp Val Ala Val Leu Thr Ser Phe Leu Gln Asp Glu Lys Val Lys Glu Ser Tyr Val

<210> 2

<213> Homo sapiens <400> 2 gtccctgctg tgagctctgg ccgctgcctt ccagggctcc cgagccacac gctgggggtg 60 ctggctgagg gaacatggct tgttggcctc agctgaggtt gctgctgtgg aagaacctca 120 tectgatect gatetetgtt eggetgaget acceaeceta tgaacaacat gaatgecatt 240 ttccaaataa agccatgccc tctgcaggaa cacttccttg ggttcagggg attatctgta 300 atgecaacaa eccetgttte egttaeeega eteetgggga ggeteeegga gttgttggaa 360 actttaacaa atccattgtg gctcgcctgt tctcagatgc tcggaggctt cttttataca 420 gccagaaaga caccagcatg aaggacatgc gcaaagttct gagaacatta cagcagatca 480 agaaatccag ctcaaacttg aagcttcaag atttcctggt ggacaatgaa accttctctg 540 ggttcctgta tcacaacctc tctctcccaa agtctactgt ggacaagatg ctgagggctg 600 atgtcattct ccacaaggta tttttgcaag gctaccagtt acatttgaca agtctgtgca 660 atggatcaaa atcagaagag atgattcaac ttggtgacca agaagtttct gagctttgtg 720 gcctaccaag ggagaaactg gctgcagcag agcgagtact tcgttccaac atggacatcc 780 tgaagccaat cctgagaaca ctaaactcta catctccctt cccgagcaag gagctggctg 840 aagccacaaa aacattgctg catagtcttg ggactctggc ccaggagctg ttcagcatga 900 gaagetggag tgacatgega caggaggtga tgtttetgae caatgtgaae ageteeaget 960 cctccaccca aatctaccag gctgtgtctc gtattgtctg cgggcatccc gagggagggg 1020 ggctgaagat caagtctctc aactggtatg aggacaacaa ctacaaagcc ctctttggag 1080 gcaatggcac tgaggaagat gctgaaacct tctatgacaa ctctacaact ccttactgca 1140 atgatttgat gaagaatttg gagtctagtc ctctttcccg cattatctgg aaagctctga 1200 agccgctgct cgttgggaag atcctgtata cacctgacac tccagccaca aggcaggtca 1260 tggctgaggt gaacaagacc ttccaggaac tggctgtgtt ccatgatctg gaaggcatgt 1320 gggaggaact cagccccaag atctggacct tcatggagaa cagccaagaa atggaccttg 1380 teeggatget gttggaeage agggaeaatg accaettttg ggaacageag ttggatgget 1440 tagattggac agcccaagac atcgtggcgt ttttggccaa gcacccagag gatgtccagt 1500 ccagtaatgg ttctgtgtac acctggagag aagctttcaa cgagactaac caggcaatcc 1560 ggaccatate tegetteatg gagtgtgtea acetgaacaa getagaacee atagcaacag 1620 aagtetgget catcaacaag tecatggage tgetggatga gaggaagtte tgggetggta 1680 ttgtgttcac tggaattact ccaggcagca ttgagctgcc ccatcatgtc aagtacaaga 1740 tccgaatgga cattgacaat gtggagagga caaataaaat caaggatggg tactgggacc 1800 ctggtcctcg agctgacccc tttgaggaca tgcggtacgt ctgggggggc ttcgcctact 1860 tgcaggatgt ggtggagcag gcaatcatca gggtgctgac gggcaccgag aagaaaactg 1920 gtgtctatat gcaacagatg ccctatccct gttacgttga tgacatcttt ctgcgggtga 1980 tgagccggtc aatgcccctc ttcatgacgc tggcctggat ttactcagtg gctgtgatca 2040 tcaagggcat cgtgtatgag aaggaggcac ggctgaaaga gaccatgcgg atcatgggcc 2100 tggacaacag catcetetgg tttagetggt teattagtag ceteatteet ettettgtga 2160 gcgctggcct gctagtggtc atcctgaagt taggaaacct gctgccctac agtgatccca 2220 gcgtggtgtt tgtcttcctg tccgtgtttg ctgtggtgac aatcctgcag tgcttcctga 2280 ttagcacact cttctccaga gccaacctgg cagcagcctg tgggggcatc atctacttca 2340 cgctgtacct gccctacgtc ctgtgtgtgg catggcagga ctacgtgggc ttcacactca 2400 agatettege tageetgetg teteetgtgg ettttgggtt tggetgtgag taetttgece 2460 tttttgagga gcagggcatt ggagtgcagt gggacaacct gtttgagagt cctgtggagg 2520 aagatggett caateteace aetteggtet ceatgatget gtttgacace tteetetatg 2580 gggtgatgac ctggtacatt gaggctgtct ttccaggcca gtacggaatt cccaggccct 2640 ggtattttcc ttgcaccaag tcctactggt ttggcgagga aagtgatgag aagagccacc 2700 ctggttccaa ccagaagaga atatcagaaa tctgcatgga ggaggaaccc acccacttga 2760 agctgggcgt gtccattcag aacctggtaa aagtctaccg agatgggatg aaggtggctg 2820 tegatggeet ggeactgaat tittatgagg gecagateae etecticetg ggecaeaatg 2880 gageggggaa gaegaecaee atgteaatee tgaeegggtt gtteeeeeeg acetegggea 2940

15

<211> 7860 <212> DNA



ccgcctacat cctgggaaaa gacattcgct ctgagatgag caccatccgg cagaacctgg 3000 gggtctgtcc ccagcataac gtgctgtttg acatgctgac tgtcgaagaa cacatctggt 3060 tctatgcccg cttgaaaggg ctctctgaga agcacgtgaa ggcggagatg gagcagatgg 3120 ccctggatgt tggtttgcca tcaagcaagc tgaaaagcaa aacaagccag ctgtcaggtg 3180 gaatgcagag aaagctatct gtggccttgg cctttgtcgg gggatctaag gttgtcattc 3240 . tggatgaacc cacagctggt gtggaccctt actcccgcag gggaatatgg gagctgctgc 3300 tgaaataccg acaaggccgc accattattc tctctacaca ccacatggat gaagcggacg 3360 tcctggggga caggattgcc atcatctccc atgggaagct gtgctgtgtg ggctcctccc 3420 tgtttctgaa gaaccagctg ggaacaggct actacctgac cttggtcaag aaagatgtgg 3480 aatcctccct cagttcctgc agaaacagta gtagcactgt gtcatacctg aaaaaggagg 3540 acagtgtttc tcagagcagt tctgatgctg gcctgggcag cgaccatgag agtgacacgc 3600 tgaccatcga tgtctctgct atctccaacc tcatcaggaa gcatgtgtct gaagcccggc 3660 tggtggaaga catagggcat gagctgacct atgtgctgcc atatgaagct gctaaggagg 3720 gagectttgt ggaactettt catgagattg atgacegget etcagacetg ggeattteta 3780 gttatggcat ctcagagacg accetggaag aaatatteet caaggtggee gaagagagtg 3840 gggtggatgc tgagacctca gatggtacct tgccagcaag acgaaacagg cgggccttcg 3900 gggacaagca gagctgtctt cgcccgttca ctgaagatga tgctgctgat ccaaatgatt 3960 ctgacataga cccagaatcc agagagacag acttgctcag tgggatggat ggcaaagggt 4020 cctaccaggt gaaaggctgg aaacttacac agcaacagtt tgtggccctt ttgtggaaga 4080 gactgctaat tgccagacgg agtcggaaag gattttttgc tcagattgtc ttgccagctg 4140 tgtttgtctg cattgccctt gtgttcagcc tgatcgtgcc accctttggc aagtacccca 4200 gcctggaact tcagccctgg atgtacaacg aacagtacac atttgtcagc aatgatgctc 4260 ctgaggacac gggaaccctg gaactcttaa acgccctcac caaagaccct ggcttcggga 4320 cccgctgtat ggaaggaaac ccaatcccag acacgccctg ccaggcaggg gaggaagagt 4380 ggaccactgc cccagttccc cagaccatca tggacctctt ccagaatggg aactggacaa 4440 tgcagaaccc ttcacctgca tgccagtgta gcagcgacaa aatcaagaag atgctgcctg 4500 tccttcagga cctgacagga agaaacattt cggattatct ggtgaagacg tatgtgcaga 4620 tcatagccaa aagcttaaag aacaagatct gggtgaatga gtttaggtat ggcggctttt 4680 ccctgggtgt cagtaatact caagcacttc ctccgagtca agaagttaat gatgccatca 4740 aacaaatgaa gaaacaccta aagctggcca aggacagttc tgcagatcga tttctcaaca 4800 gcttgggaag atttatgaca ggactggaca ccagaaataa tgtcaaggtg tggttcaata 4860 acaagggctg gcatgcaatc agctctttcc tgaatgtcat caacaatgcc attctccggg 4920 ccaacctgca aaagggagag aaccctagcc attatggaat tactgctttc aatcatcccc 4980 tgaatctcac caagcagcag ctctcagagg tggctctgat gaccacatca gtggatgtcc 5040 ttgtgtccat ctgtgtcatc tttgcaatgt ccttcgtccc agccagcttt gtcgtattcc 5100 tgatccagga gcgggtcagc aaagcaaaac acctgcagtt catcagtgga gtgaagcctg 5160 tcatctactg gctctctaat tttgtctggg atatgtgcaa ttacgttgtc cctgccacac 5220 tggtcattat catcttcatc tgcttccagc agaagtccta tgtgtcctcc accaatctgc 5280 ctgtgctagc ccttctactt ttgctgtatg ggtggtcaat cacacctctc atgtacccag 5340 cctcctttgt gttcaagatc cccagcacag cctatgtggt gctcaccagc gtgaacctct 5400 tcattggcat taatggcage gtggccacct ttgtgctgga gctgttcacc gacaataagc 5460 tgaataatat caatgatatc ctgaagtccg tgttcttgat cttcccacat ttttgcctgg 5520 gacgagggct catcgacatg gtgaaaaacc aggcaatggc tgatgccctg gaaaggtttg 5580 gggagaatcg ctttgtgtca ccattatctt gggacttggt gggacgaaac ctcttcgcca 5640 tggccgtgga aggggtggtg ttcttcctca ttactgttct gatccagtac agattcttca 5700 tcaggcccag acctgtaaat gcaaagctat ctcctctgaa tgatgaagat gaagatgtga 5760 ggcgggaaag acagagaatt cttgatggtg gaggccagaa tgacatctta gaaatcaagg 5820 agttgacgaa gatatataga aggaagcgga agcctgctgt tgacaggatt tgcgtgggca 5880 ttcctcctgg tgagtgcttt gggctcctgg gagttaatgg ggctggaaaa tcatcaactt 5940 tcaagatgtt aacaggagat accactgtta ccagaggaga tgctttcctt aacaaaaata 6000 gtatcttatc aaacatccat gaagtacatc agaacatggg ctactgccct cagtttgatg 6060 ccatcacaga gctgttgact gggagagaac acgtggagtt ctttgccctt ttgagaggag 6120 tcccagagaa agaagttggc aaggttggtg agtgggcgat tcggaaactg ggcctcgtga 6180





agtatggaga	aaaatatgct	ggtaactata	gtggaggcaa	caaacgcaag	ctctctacag	6240	
					acaggcatgg		
					gaggggagat		
					aggatggcaa		
					aataggtttg		
					aagcctgtcc		
					cggaacatgc		
					atcctctccc		
					cttgaccaag		
					ctctcattac		
					gatgagaaag		
					taaagaggaa		
					gttgatgtgg		
					aatgcaatga		
					ggctctcaag		
					tggaacccaa		
					tattctcatt		
					aaaatcaaaa		
					ttcccggtga		
					tcagaaagtt		
					gagtctatca		
					tttgattccc		
					tccaggcacg		
					acagggtcat		
					aacagccaaa		
					gcgttcaaac		
					tgcatctcaa		
					gaaaatgaaa		
	-	_					
<210> 3							
<211> 22							
<212> DNA							
<213> Homo	sapiens						
<400> 3							
gcagagggca	tggctttatt	tg					22
<210> 4							
<211> 24							
<212> DNA							
<213> Homo	sapiens						
<400> 4							
ctgccaggca	ggggaggaag	agtg					24
<210> 5							
<211> 23							
<212> DNA							
<213> Homo	sapiens						

-9-QJ

<400> 5

gaaagtgact cacttgtgga	gga	23
<210> 6 <211> 20 <212> DNA		
<213> Homo sapiens		
<400> 6 aaaggggctt ggtaagggta		20
<210> 7 <211> 20 <212> DNA <213> Homo sapiens		
<400> 7 catgcacatg cacacacata	,	20
<210> 8 <211> 27 <212> DNA <213> Homo sapiens		
<400> 8 ctttctgcgg gtgatgagcc	ggtcaat	27
<210> 9 <211> 20 <212> DNA <213> Homo sapiens		
<400> 9 ccttagcccg tgttgagcta		20
<210> 10 <211> 26 <212> DNA <213> Homo sapiens		
<400> 10 cctgtaaatg caaagctatc	tcctct	26
<210> 11 <211> 26 <212> DNA <213> Homo sapiens		
<400> 11 cgtcaactcc ttgatttcta	agatgt	26
<210> 12 <211> 20 <212> DNA <213> Homo sapiens		



<400> 12						
gggttcccag	ggttcagtat					20
<210> 13						
<211> 21						
<212> DNA						
<213> Homo	sapiens					
.400- 13						
<400> 13	tanagaaga	3				21
gaccaggaac	tcaagcacca	a				21
<210> 14						
<211> 10545	5					
<212> DNA						
<213> Homo	sapiens					
	-					
<220>						
<221> misc_	_feature					
<222> (1)						
<223> n = a	a, t, c, or	g				
<400> 14				+++++	tastaattas	60
				taacttcatt		120
				aatttgacta		180
				gcccatgacc tggaatgttt		240
				aaggatagag		300
				agcttcaggc		360
				tatccctcc		420
				acctgttctt		480
				gctaccgatc		540
				aagcatgttc		600
				ctctggagat		660
				gaataggcaa		720
				tccacctcct		780
ttactggcaa	gctgtttttg	atataagaca	tctagaacac	tgtaaatata	taacattttt	840
atttgtctat	tatacctcaa	ttacgaaaaa	gacatctaga	agcaacctca	tcaagagaga	900
tactgaggcc	gggcatggta	gctcacactt	gcaatcccat	tactttggga	ggctgaggca	960
				caacatgttg		1020
				ggcacctgta		1080
				gcagaggttg		1140
				attacatcta		1200
				aaatttcaac		1260 1320
				tacacgcaca		1320
				gtcatataat		1440
				gtgaactatt gaaatagcta		1500
				cagctctaat		1560
				gattgcagca		1620
-		_		atacgacagt		1680
				caatttctct		1740
				cttctggaac		1800
				agcactaaag		1860
				tttgttactg		1920





cagettetgg tagetgtaca gatacatgea etttetttee teaetgtgtt tecatagaca 1980 gatttagtgc tgtagaagag tagagggcag tcacgggaag gagttcctgt ttttcttttg 2040 gctatgccaa atggggaaaa atcctcctat cttgtctttt tagtgtcatc ctctctcccc 2100 2160 ttttcttctt ctttataatt ctcatctctc atctctcctg gaaatgtgca tgtcaagttc 2220 aaaagggcac aatgttttgg tgaggaagag gtgggagaac acgtgccagg tgctaactag 2280 qqtcatcatt tcccccttca caqccaqctt cctqtqaatq tqtqtqtqtg tqtqtqtqt 2340 tgtgtgtgtg tgtgtgtgtg tgtgtatttc ttttgccagc atcactgaat ctgtctgctg 2400 totggtatto caggttttgg tttagggaaa agtaaaagta attttataat cocagctgto atttaagcca cccctttgtg ggtagcatat ggtccactct ctcagttcat tgtcctaaag 2460 atgetteate agaaaggaat aactteeace cegttaetet etgteeeett actetgettt 2520 attititette gicaateeta ceaecaceae ceaetgiitg aacaaeceae tattattigi 2580 ctgtttccca tccctggtag aataggagcc ccatgaatga aggaactttg cttctgttgt 2640 tcaccactga atctctaagg tatggaacac acctggcatg tgataggcac tcgataaata 2700 2760 tttgttgtgg ctcatgggca ccttgcagag ttaaggctgc agttgtttgt ggaatttata 2820 agtggtaatg aatatttatc tactattcct cttccaaggc gatcacacaa taatcaggct 2880 ttacactatc cagttettag gtettecaag ttatgaettg tgaggtatgt taattatgat 2940 aataqaaqqc aqtttatttq qttcaqattt attgatgtgt aatttaccac agtaagactt 3000 cccctttaca aaaqtatqat qaqttttqac aaatqqatac acatqtgtat ctaccactgc 3060 catgeteett tteagtetgt egteeeetee acceatgace actggteace actgeagtga tttctgtccc cttcatttca ccttttccag aatgtcatat aaatggaatc atgcagtatg 3120 3180 tagttttttq tqtctqqctt atttttctta gcattaggct tttggggattc atccaggttg 3240 togoatgtaa cagtagotta ttoottttta tggotgagta agtgtoccag ttttatttat 3300 atatttattt atgaggaggt gtctcactct gtcacccagg ctggagtgcg gtagcgcgat ctcagctcac tgcaacctcc gcctcccagg ttcaagcaat tctcctgcct cctgagtagc 3360 tgggattaca ggcacccacc gccacgccca actaattttt atatttttag tagagatggg 3420 gtttcaccat gttggccagg ctgatctcaa actcttgacc tcaggtgatc cgcccacctc 3480 tggctcccaa agtgctagga ttacaggcat gagccactgt gcccagcccc agttttattt 3540 attcaccagt tgatggtctt ttcgacaact aattgtttcc agtttttggc tattctgtat 3600 3660 aaqqcttcta taaatattca caaataccta ggatgggatg actgggtcat ataatagtac 3720 tgtataacct tagcagaaac tgtcaaacta ttttccaaag tggctcttcc attttacaat 3780 tccacagtgt attgagtccc agtgtctcca tacacatgct agcactttta atatttaatt 3840 tagtgggtat gtaatgatat ctcattgtgg ttttaatttg catttctctg cagctaatga tgagtgtttc tgcttatttg ggaaggtttt aatttagcag tctgttgtat tctgtagata 3900 ttaataactt caaaatatca gtggcatttg cagttaaaat ttccttaaaa aattggccaa 3960 4020 aggtttccag cagtcacttc tgccatgccc aaactgtatg aaacaaggct gaggtgtgga 4080 gattgtcaca ttttggcaag gagtgatcca cttgggtgac tgatgagacc cagagagcgt acgcctcggg cttgagggtg aggacgggcg ggaagtcgac tgcatggccc tgctggcctt 4140 gggaggctgc ccagtcctta gctaaagctg gcagttatgg gaaacagact tagattctat 4200 4260 tacgtttttc aggatgtccc aggagtcacc tgggaagctc agcagtcctt tgtgactttc 4320 aagcatatgg tagaagctgc tgaacacaga gctccctctt tggggataat ttgcccaaat catttaatca ggcttgagaa atgagttacc acaggtccag gagtgctgcc accettgaat 4380 totgacacco tatttotoot atcogtotot taattaatta agcagacato cocaagtgot 4440 4500 tacgacaagc caggaccett ttgcatacta aggaaaacag ggatgaagga aacagaaatg gtctctgctc tgactcagaa ggtagaaatc ctctttccca gccaagtctt cctagggagc 4560 acgtaggaag ggctctgaac ccacgtgtca gttgcagggg aggatatcag gaaaggacat 4620 4680 tgaagaagtg gagacctaag tttgagacct aggcattagc caggctagca gtgcttgaaa 4740 aagtgtetta ggacaagaga aeteaceagt gaagteeeag tggtaggaga gegtgeagea 4800 tattctgagc ctgtatacac atctccaggg cattgcttag caggtgggga gtggcaagag 4860 agtaggetgg agteacagaa gggaggeeag gtagaeettg gtgageaetg gaetetatgt 4920 tcaggtgctg aggagctggc aaaaggtttt aagtcgggga gaggcatgtt cagatatttg 4980 gtctagctga gtaactttgg gtgctctgtg acaaatggtt gggagaccag tgaggtggca 5040 qttqcqqtca tctaqqaqca qqatcaqaqt qgcctattga ctgggatgac tgtgaagtgg 5100 gatcctttcc agccagtaac tggaaatgtg tatgagggca gaagtgagtg tactgcattt gaaacattga gaaatctagt acatagtact gtctctttta tatcttttt tttttttt 5160

B



5220 ttgattttgg tttgtttgtt cactaacttg gaaaactgat gtggaaatgt ccctttggct 5280 tcagttacct gagcagaagg ggccgggcat tgccaaactc tcctcttagg acagaattgc 5340 tcccagtatt gatcattgtg ttctgagttg ggggagcaaa ttgtgcagga ggccaggtca 5400 qtqccaaggt gggtgggagg aattggagca ggaagcttgc ctaagtgtgc ccagcaaagc 5460 cacggtagaa ctttctactg tggctctatg ctacttctta gcaaccttct ccatgtgctt 5520 cctggagagt ccttggagtc agaacctttt tcttgaaacc cagacacttt acttccaaga 5580 aaatgctgtc caagaaaact catccttccc ttcttctcat gaacgttgtg tagaggtgtg 5640 tettetette etttgagett tteeaeteag ggtttagggg aggtgatatt etatatttgg 5700 gtttggctct gggtactgca acactaggct attaagattt catccttact gctttgcccc tcctatcttt ccagaaaccc acaatggatt tgctagaaat aatggaacgt cctgtttgga 5760 caggatataa ccatttctca gctagaggat attgttggaa tgaagaaaga taaatgggga 5820 5880 gaagggaact cacattgctt tggcacttaa attaagccat gtactgtgtt gggaaattat 5940 ttatattatc tcgttgaatc cacagtagaa cacagttgaa caccatacaa ggtaagtatt 6000 gtcatcctta ttttaccatg aggaaattga tgcttagaga gcataaagcc ttggccaggg 6060 gcacatagtt gggaagccgg ggctaattca tgcctgggct ctttctgata gttttccttt 6120 tttaattgtc ccctcctcat tgttaccttg gggatttcaa gagattcatg tagcttctaa 6180 atcaacgaac tgattcctgg agagcagctt ctgtatgaga aaaatctagc taattattta 6240 tttcagtgtc tctggaatgc aagctctgtc ctgagccact tagaaaacaa tttgggatga 6300 caagcatgtg teteacaatg etgetetggt tgecagtget gtgetgecag ttgteatett 6360 tgaacaaact gatgcagtgc tggtttaact cttcctcttt ttggagtaag aaactttgga ggcctgtgtc cttctagaag tttgctgagc aaatggtaag gaaaagaaat aggtcctaag 6420 gcttgactat ttcagagaat ttcttgattt attggactgt caatgaatga attggaatac 6480 6540 atagtggtag gctgtctttt cttctcagac actgcaattt cctccaatct cttgactttt ctagaagttt taatccaagt ccttgttggg tggtagataa aagggtattg ttctactaga 6600 gactgacctt ggcatggaga tctcatttgg actcacagat ttctagtcta gcgcttggtt 6660 6720 ttgtatccat acctcgctac tgcattctta gttccttctg ctccttgttc ctcatgccca 6780 gtgtcccacc ctacccttgc ccctactcct ctagaggcca cagtgattca ctgagccatt 6840 tcataagcac agctaggaga gttcatggct accaagtgcc agcagggccg aattttcacc 6900 tqtqtqtcct cccttccatt tttcatcttc tgccccctcc ccagctttaa ctttaatata 6960 actacttggg actattccag cattaaataa gggtaactgc tggatgggtg gctgggatac 7020 acagaatgta gtatcccttg ttcacgagaa gaccttcttg ccctagcatg gcaaacagtc ctccaaggag gcacctgtga cacccaacgg agtagggggg cggtgtttc aggtgcaggt 7080 ggaacaaggc cagaagtgtg catatgtgct gaccatggga gcttgtttgt cggtttcaca 7140 7200 gttgatgccc tgagcctgcc atagcagact tgtttctcca tgggatgctg ttttctttcc agagacacag cgctagggtt gtcctcatta cctgagagcc aggtgtcggt agcattttct 7260 tggtgtttac tcacactcat ctaaggcacg ttgtggtttt ccagattagg aaactgcttt 7320 7380 attgatggtg ctttttttt tttttttga gacagagtct cgctctgtcg ccatgctgga gtgtagtggc acaatcttgg ctcactgcac ctccgcctgc caggttcagc gattctcctg 7440 cctcagcctc ccaagtagct gggactacag gtgcctgcca ccatgcccag ctaatttttg 7500 7560 tatttttagt agagacgggg tttcaccgta ttggctagga tggtctcgat ttcttgacct 7620 cgtgatccgc ctgcctcggc ctcccaaagt gctgggatta taggcttgag ccaccacgcc 7680 tggccgatgg tgctttttat catttgaagg actcagttgt ataacccact gaaaattagt 7740 atgtaaggaa gttcagggaa tagtataagt cactccaggc ttgaggcaaa atttacaaat gctgctgact ttgtatgtaa ggggaggcat tttcttagaa aagagaggta ggtctctggg 7800 attccagtat gccatttcca tcctcagtgt ttttggccac ctgagagagg tctatttca 7860 7920 gaaatgcatt cttcattccc agatgataac atctatagaa ctaaaatgat taggaccata 7980 acacgtaget cetageetge tgteggaaca ceteeegagt ceetetttgt gggtgaacee agaggetggg agetggtgae teatgateea ttgagaagea gteatgatge agagetgtgt 8040 gttggaggtc tcagctgaga gggctggatt agcagtcctc attggtgtat ggctttgcag 8100 8160 caataactga tggctgtttc ccctcctgct ttatctttca gttaatgacc agccacggcg 8220 tecetgetgt gagetetgge egetgeette eagggeteee gageeacaeg etgggggtge 8280 tggctgaggg aacatggctt gttggcctca gctgaggttg ctgctgtgga agaacctcac 8340 tttcagaaga agacaaacag taagcttggg tttttcagca gcggggggtt ctctcatttt 8400

15i



tttcacacag ggattgatgg	aatctggctc	ttatggacac	agaactgtgt	ggtccggata	8460
tggcatgtgg cttatcatag	agggcagatt	tgcagccagg	tagaaatagt	agctttggtt	8520
tgtgctactg cccaggcatg	agttctgatc	cctaggacct	ggctccgaat	cgcccctgag	8580
caccccactt tttccttttg	ctgcagccct	gggaccacct	ggctctccaa	aagcccctaa	8640
tgggcccctg tatttctgga	agctgtgggt	gaagtgagtt	agtggcccca	ctcttagaga	8700
tcaatactgg gtatcttggt	gtcaatctgg	attctttcct	tcaggcctgg	aggaatataa	8760
taactgagac ttgttttatt	tctgcagagg	gttctaagcc	attcacttcc	cagatgggcc	8820
aataatgctt tgagtaatct	ggagatcatc	tttaatgcgc	aggtgaatgg	aactcttcca	8880
cagagggatg tgagggctgt	agagcagagt	gaactccctg	aaactcagac	gtcagctctt	8940
tgtctctcta tctctgaaca	cccttcctta	gagatcccat	ctctaggatg	catttctctg	9000
tagttagttt ctaagtctct	tgttcctgtt	ctgcctttat	tttttttcc	tggattctaa	9060
gccagtatcc ccacttggct	gtcttaatgt	agcttaacat	gtctgtaatc	aaaatgatca	9120
tctttctgag attcaaaggg	ctataaggga	ctttggagag	aatttcattc	agttttcctc	9180
aaactagaat aatgcttgca	ctgtctgtaa	aagaacaaaa	gtgtcaaagc	atccttttgt	9240
tcactaaatt tcctttttta	ttatagtgtt	acttaaatat	taggaagtta	aaagtaggta	9300
taaacttctt ataggctgtt	attatacaac	tatatgaccc	atacatattt	acaaattaag	9360
tgcagccaaa attgcaaaat	caataccatt	caaattaata	ccttaaatgt	ggtgaggcag	9420
ctgttgttca actgaaacca	aattataagt	tgcatggcag	taaatgctat	catgctgatc	9480
attttgagtt tggccagtct	atattatcat	gtgctaatga	ttgaattctc	cacccatttt	9540
tctacttgta tgaccttaat	ttgatggcac	ctgttccatc	ctcatgagtt	tgctacaatt	9600
atactggtgc caacacaatc	ataaacacaa	atataaactt	gggctttgaa	atcttgtgcc	9660
agaacttggc tttaaagtaa	gcatttaaaa	aatccatatg	tgtttattag	actttgttta	9720
gatgactgtt gaaatgaaaa	caaagtgttt	aaaatcctct	tagagaactt	aaatataatc	9780
cctcagcaat atgtatacag	atcttccttt	gagaaaaact	gattgtgttc	agcctctcat	9840
gttacaaatg gggaacctga	attctgaggt	ctctagtgag	agaacaggga	ctggaatctg	9900
tggatcctat ctgttttaat	aataattgta	aagtataata	gataatatta	tattaaaaag	9960
agagnnnnnn acacttagaa	tgagcttcca	tgtgtgaggc	actaactgat	taggcattat	10020
taactagatt tattcctttt	aaggccccgc	gatgtactgt	tatttccaca	tgttgtagct	10080
ggggaacgtg ctactcagag	aggttaagta	acttgtctga	ggtccacacc	actaacaagg	10140
agcacaggta gggttcaaat	ccagataatc	tgactttgga	gctggcactc	taactcaatg	10200
tgcctaatcg cttttcagtg	gtgtcattat	tttgcctatt	ctccatctga	gaatattgaa	10260
gtttctgact ccttccttgc	ctttctccct	gcctcccgtg	gttatcccca	ggtcttggtg	10320
ttccagtcct ctatgtccgt	ccttactctt	attcctttgc	tacagtgtga	tccagggctc	10380
ctgcccttct tatcctggta	gagggggccc	acttgctggg	aaattgtctc	cgccatggtt	10440
tatccatgtt gtgtgtccat	tagtgagtag	tgggaagaat	catatcatgt	tggcaatgaa	10500
aggggggcta tggctctggg	gtagtctagt	ctgaactctt	atttt		10545

<210> 15 <211> 4736 <212> DNA <213> Homo sapiens

<400> 15

ctttttttt tttttttt ttttttttt tgaggtgaag tctcactctg ttgcccaggc 60 tggagtgcaa tggagcgatc ttggctcacc ccaacctctg tctcctgggt tcaaacagtt 120 ctcctgcctc agcctcccga gtagctggga ttacaggctc ccgccaccat gcccagctat 180 ttttttgtat tttcagtaga gatggggttt cacccttttg accaggctgg tcttgaactc 240 ctgacctcat gatcaaccca cctcagcctc ccaaagtgct gggattacag gtgtgagcca 300 ccacgcccgg cctcataagt attttctaaa tttatttaca gtcatgccat ttaaaaggaa 360 agttgtattc ctgtctttgt taatatttat aagtgatttt attcagctac aagcttggaa 420 tggcatataa ttttgtattc tgcttttttc acttaatatt acatggctaa tgatttctgt 480 gtttcataaa cattattctg atgatggcat gatatattgt tgagtacatg taccataatt 540



gaatcatttc cctattgcta tgcaattaag ttgtttccaa tattttgcaa ttataatgtt 600 660 tcaatqaatq aataacttta tgcatatagc tttttgatat cttaagttca gtttcctagg 720 atgaatttcc aggaatagta attgggcaaa tgggataaac atgactcttg aatacgtatt 780 gttaacattg ctttcccaaa gggctcaact gatttatatt tccgtgttca ttatctttta 840 aaccaqctca tttactcacc aaacattttt aaagccatta tcatgtggta ggcttagtaa 900 gaagaaagtg accctaaggg agaagcttat atataaatag ggtccctggt gtaccaagtg 960 ctgatacaga cacaaagtac ctggggaaat tgagatgagg gagtcctggc tcagctggga gaaaagttca ttttcataga gtcatggttt tgttctttgg cagaaagaaa attgctttct 1020 tccccaccc caccccage tttattgagg tataattgac aaataaaaat tgtatatctt 1080 1140 taaqatatqc aatqtqatat atatqtatat ctcaacttaa aaaataagct acagaataaa aaggtgtttg ctattaaaaa aaaagaaaag gctgaatgtc attcccaagc ttggaaattt 1200 gagtatgttg cctctttggg attatttaca gaaatattag caagaccagc cccatctttg 1260 gtcttgagta ctccactgtc agcatgcttt cttccagaga gggatccatt tgcctttatt 1320 tttcattctg ttgtgccgtc tatgcaaact attcttgata gttttatggt aacagtgttt 1380 ttttgttcca tgagataaat ttatacatgc tcattgtgga aaatttagaa aagacaggaa 1440 1500 1560 cttgctctgt cgcccaggcc ggagtgcagt ggcgtgatct cagctcacag caacctccgc 1620 ttcccaggtt taagtgattc tcctgcctca gcctcccaag tagctgggag tacaggcatg 1680 caccaccacg cccggctaat tttgtatttt tagtagagat ggggtttcac catgttggcc 1740 aggotggtot caaactootg acctoaggtg atcogootgo ottggcotog caaagttotg 1800 ggattatagg caggageeac tgegeeagee acacetaegt tettateate etagtacate cactgtcatt atcttgctgt atttccttct gcccagtctc actctgatca tgcagtggcg 1860 tgatcatgca gtgatctcgg ctcactgcaa cctaggcctt ctgggttcga gtgattctcc 1920 tgccttagcc tcctgggttc aagtgattct cttgccttgg cctcccaagt agctgggatt 1980 acaggcatac acccccatgc ccatctaatt tttgtatttt tagtagacac agcgtttcac 2040 taaaattttg tatttttagt agagatgggg tttcaccatg ttggccaggc tggtctccaa 2100 2160 ctcctgacct caggtgatcc gcctgccttg gcctcacaaa gtgattacag gcatgagcca ctgcatccat cgccaaaaag atttttaaa agagtttaat gtagaaccat atcaaaggtc 2220 2280 2340 aataaaaaca cccaaaacaa tctqaaqcac qaqcacctag cagaaaggtt caattatgat 2400 ctattcatag agtggaatat caagtagaca ttacaggaca tgttttaaga ttatatttta tgtcatggga aatgctctcc cagtatgatg ttaaatgaaa aaacagaata caaaagtata 2460 2520 tatgctgcat agtctcaata ttgtagagaa aaaatattat ttatgtatgc atgaaaaaag 2580 acaaaagatg ttaacagaga tccattgtta cttcagttta ctagggattg tctctgggag gtaggattaa ggtgatttat atttaccttt ttaaactttt ctgtattttt ttatttcaa 2640 2700 attttccata aaaatataag gacttgaaga tcaagaaaaa atttctgctt tggctcagtg 2760 cagtcgtcac gcctgtaatc ccagcagttt gggagcccta ggggagagga tcacttgaac ccaagagttt gacgttccag tgagctatga tctccggatc gtaccgcctg gacgatggag 2820 2880 caagaccetg teteaaaaaa aaaaatettt gettttttt tttgtttgtt tttgagaegg 2940 agtetetete tgttgeecca getggagtae agtggeacaa teteagetea eegeaacete 3000 tgcctcctgg gttcaagcga ttctcttgcc tcagcctccc aagtacctgg gattccatgc 3060 acceaceact atgeceaget aettttttgt atttteagta gagacagggt tteaceatgt tggccaggct ggtctcgaat tcctgacctc agctgatcca ccggccttgg cctcccaaag 3120 tgctgggatt acaggcatga gccactgtgc ccagcccaat cttttgcttt ttttaaaaaa 3180 agaagacaaa aagggatttt ataccagtat tatcttggct gtgtgactct gaagccacag 3240 ttgtaagtta taattactct gaaacacaag gccctgtgac tcttttgggc tctttggtgt 3300 3360 ttatcttgat tacaacgttg gaatatagaa atgaaaggaa tgggagaggt gatagacttc aggcagtgta actagttgtc tgaacactac tggctcaatt atattgtgtc tagtgatttc 3420 catcttgtcc gtctgctaat ttatcgcctg gtaactcact gaggcagggt tttcctttgg 3480 3540 agaaacctca ttgttttaac cagtgtatca tgcttgttta gaagttcaat gatcttttta actcatcgga gaagatgatg accagacctg gacagatggg gaaggacttt gcactctctc 3600 tttacagtcc tgagtgcaca caggtcaata tggaactatg tgtgaatttt cattgtcttt 3660 3720 gagageeete ttetetgeee catagggage agetttgtgt geaattagag gageaagggt tgtgtgtatt tagcacagca ggttggcctg gtcctctcct ctcaacatag tcaccacata 3780





cctggcacta	tgctaaggct	gggaatgcag	acagatgggt	gcctgctttc	agagtgctca	3840
		acagaaacag				3900
		actggagtag				3960
gattttagta	aaggaaatta	tgccacgatg	aatcctgaag	aatgaataga	agtgaaccag	4020
ataaagcacg	ataggaagca	tcttccctta	cctaagggaa	gacacagagg	tatatggaat	4080
ggtatgttaa	aaggttggga	ctccaaacag	ttctgttaaa	gcttagagag	tggtgggaga	4140
gactggagaa	gttgattaat	tagtaaatga	agttgtctgt	ggatttccca	gatcccagtg	4200
gcattggata	tccatattat	ttttaaattt	acagtgttct	atcttatttc	ccactcagtg	4260
tcagctgctg	ctggaagtgg	cctggcctct	atttatcttc	ctgatcctga	tctctgttcg	4320
gctgagctac	ccaccctatg	aacaacatga	atgtaagtaa	ctgtggatgt	tgcctgagac	4380
tcaccaatgg	cagggaaaat	ccaggcaatt	aacgtgggct	aaattggact	tttccaaaga	4440
		acacatgctt				4500
tgataaggca	tgaactcagg	agactgtttt	cagtcctagt	gaatggtgat	aattgtaatt	4560
ataacagtag	acaacatctc	ttttacacat	tttaaatcat	gaaaatagaa	taaccttact	4620
gataatttta	gaaagtggtg	attaaaagca	catttaagat	aatgccttaa	cacctagtct	4680
tttccatatg	catgatgtct	taatcacaca	ttgcaaatca	tggaacacag	aatttt	4736
<210> 16						
<211> 4768						
<212> DNA						
<213> Homo	sapiens					
<400> 16						
	cacagtettt	ctcttagggc	tagactcaat	aaataaatta	acactocada	60
		caacatttac				120
		tcctaccact				180
		ttcttccagg				240
		catctttctc				300
		acatagtcat				360
		ttttctgaga				420
		ggaagtcaag				480
		gtggaacctc				540
		aatcccagct				600
		gcagtgagcc				660
		caaaaaaaa				720
		gagataattc				780
		acattttaga				840
		aaactcagtt				900
		atggtgtagt				960
		ctgcctctgc				1020
	_	tcctctgact	_			1080
		gtaaatgaga				1140
		tgctctgttg				1200
		cccaggttcc				1260
		ccaccacgtc				1320
		cactggtctc				1380
		gattacaggc				1440
		cttttctcat				1500
_		cttggagagg	_			1560
		cccagttca				1620
		tatattattt				1680
		caaataggat				1740
		ctgaaatacc				1800
		gtgccagtgt				1860



		ggttacataa				1920
		ttccttgaac				1980
		agtccctgca				2040
		cctctctggt				2100
ctatattgaa	atgcaaagtg	cagcaagtcc	tgactttgga	ttaacttctc	agcccatttg	2160
		taaaacaagg				2220
		ctgggcaaca				2280
		cataggctca				2340
tctgcaaaaa	cgctttgcct	gcaaggtctc	atgcgatgct	caccacagct	ctgtgaagtt	2400
aattgtactt	ttatcaccat	tttacagatg	agaaaactga	gggtatgggg	tcaatgactt	2460
		aagctgcagg				2520
ccaaagcctg	tgaagctact	tgttcttcac	cacctagagc	tgtggttctt	gataactgtg	2580
aactcttttg	gggtcacaaa	tagccctgag	aatatgatag	aagcaggagc	tctggccttt	2640
ctgtccatac	ctgaacaggt	ccttgggtta	agagcccctc	gtccagggcc	tattaatctt	2700
		atgtattacg				2760
ctaggaccaa	gcccaaatat	gtcccatcat	ccttttggta	agaagctcat	tgtaagaaag	2820
aaagaggaga	gcaagaggat	gacctagtgc	atggggcctc	attgttttaa	ttagtgacaa	2880
aacaacaata	ataacaacaa	aacccccgaa	gcttcacaga	tgacatcaga	ccccaagcct	2940
gtgtgttttt	caggtgccct	tgaggagctt	tgtagctggc	agaggaggtg	aaactgacaa	3000
atgtttggca	gatggaggag	agtaccagag	gggtttgaga	tgagctaaat	tccaatctaa	3060
ccgcagtgtt	gaggaagagg	cttggattgg	gaccatggag	atgggggttc	tactcccagt	3120
cacgccagct	gactttgcga	gtgttctttg	tcagtcactt	tatcttattt	tatttattt	3180
tattttttg	aaatggagtt	tcgctcttgt	cgcccaggct	ggagtgaaat	ggcgcgatct	3240
tggctcactg	caacctcccc	ctcctgagtt	caagcgattc	tcctgcctca	gcctccagag	3300
		tgccaccaag				3360
cagggtttcg	ccatgttggc	cagggtggtc	ttgaactcct	gacctcaggt	gatccgccca	3420
ccttggcctc	ccaaagtgct	gggattacag	gcgcgagcca	ctgtgcccag	cccacttcat	3480
cttaccgtag	ttacctcctt	agagtatgaa	aaaataggct	tagggcatcc	ccaagtcccc	3540
tctatgtctg	agagctgagg	ctggctgtca	aagaggaact	aaggatgcca	gggactttct	3600
gcttaggacc	cctctcatca	cttctccaac	gctggtatca	tgaaccccat	tctacagatg	3660
atgtccacta	gattaagaat	ggcatgtgag	gccaagtttc	cacctgagag	tcagttttat	3720
tcagaagaga	caggtctctg	ggatgtgggg	aatgggacgg	acagacttgg	catgaagcat	3780
tgtataaatg	gagcctcaaa	atcgcttcag	ggaattaatg	tttctccctg	tgtttttcta	3840
ctcctcgatt	tcaacaggcc	attttccaaa	taaagccatg	ccctctgcag	gaacacttcc	3900
ttgggttcag	gggattatct	gtaatgccaa	caacccctgt	ttccgttacc	cgactcctgg	3960
ggaggctccc	ggagttgttg	gaaactttaa	caaatccatg	taagtatcag	atcaggtttt	4020
ctttccaaac	ttgtcagtta	atccttttcc	ttcctttctt	gtcctctgga	gaattttgaa	4080
tggctggatt	taagtgaagt	tgtttttgta	aatgcttgtg	tgatagagtc	tgcagaatga	4140
gggaagggag	aattttggag	aatttggggt	atttggggta	tccatcacct	cgagtattta	4200
tcatttctgt	atgttgtgaa	catttcaagt	cctgtctgct	agctattttg	gaatatacta	4260
tatgttgtta	atgatatcat	gcagcagacg	tgcatctgaa	tgggctggct	ctaggagcta	4320
gagggtaggg	gctggcacaa	agatgcatgc	tggaagggtc	cttgcccata	agaagcttac	4380
		tgtcttctct				4440
		tctgcaggtc				4500
		cctttgtatt				4560
agtatgggca	taataagtgt	ccccaaatg	agacattgag	gattcttcaa	atgcacagga	4620
ccgtgatgtg	agttaggacg	gagtaaggac	gatgggatgt	ggctcatgac	aatcctgagg	4680
aagctgcagc	tgcggcacgc	agggccacac	tgtcatgttc	atggacccta	gactggcttt	4740
gtagcctcca	tgggcccctt	ccatacac				4768

<sup>&</sup>lt;210> 17

-17-

<sup>&</sup>lt;211> 1295

<sup>&</sup>lt;212> DNA

<sup>&</sup>lt;213> Homo sapiens

<400> 17						
tcatgactgc	cattggtata	aagatgaata	taatccagac	cagattcatg	attattcata	60
catttttagt	gtattaactt	ttaattctgc	ttttaaaata	aattaaaaca	ttctaatatg	120
cccttaagag	tatcccagcc	caggccactg	agcctactgt	ggttcatgga	taagtttgcc	180
cctgggggca	tgtgtgtgca	tgcatgtgtg	tgcacatgca	tgatgagccg	ggccttgaag	240
ggtggtaaga	tttgggtgtg	tagaccaatg	gagaaaggca	tttggggcag	tgatgatggg	300
tgggggaggg	aacatggtga	tgaatggagc	tgggtgtggg	gagccatggg	agtgggttag	360
ggccagcctg	tggaggacct	gggagccagg	ctgagttcta	tgcacttggc	agtcactict	420
gtaaagcagc	agaggcagtt	ggcctagcta	aagcctttcg	ccttttcttg	caccctttac	480
		agatgctcgg				540
agcatgaagg	acatgcgcaa	agttctgaga	acattacagc	agatcaagaa	atccagctca	600
agtaagtaaa	aaccttctct	gcatccgttt	ataattggaa	attgacctgc	accagggaaa	660
agagtagccc	aggtgtctgg	ggcttgttcc	cattagatct	tccccaaggg	gtttttctcc	720
ttggtggctg	gcctgtgggg	cccctctcca	ggaggcattg	gtgaagaaac	taggggagct	780
ggttgccaca	gacagtgatg	tactaatctt	ctctgggaag	acagaagaaa	agtccccagg	840
gaagaatact	acagacttgg	ccttagggac	agctaggggt	gcagattgct	gccaactgca	900
ttttttctga	agttggccat	atggttgcag	tgaatggatt	tatagacaga	gtatttctgt	960
gcatataaga	gcaattacag	ttgtaagttg	atatggataa	gtgaaagtta	agcacttctt	1020
tctaaaaaga	gaatgcaatt	cattttcccc	taatcatttc	aattagtctg	atgggcattt	1080
gaacttgttg	tctttaaaaa	gtgaaatctt	tacctctgat	ctggtaagta	tccaggcaat	1140
ttcttgtgtg	ccacccagga	ggtatctggg	gagtgggcat	tttctgactg	aggcattggc	1200
tgccatagca	tcagagcagc	cttccaggca	gtggcctggc	aaggggacag	aggctggtgg	1260
gagcagctgg	ctgagtgcag	ccagtaatgg	catgt			1295
<210> 18						

<211> 2188 <212> DNA

<213> Homo sapiens

<400> 18 agctctccag gtgattctga tgcatactta agtttgagaa ccattgcttg ttttgcatta 60 aacaggagat tagtctctgc agcttgtggg aataaagctt taaatctctc caattttagc 120 tctgtgaaaa ggcagtgggg agacaggaat gaacggacta gtgccacaaa gctcaggtgg 180 ggtgggtgag atcatttaga agagaaagac cgggcatggt ggctcacgcc tgtactgtca 240 300 gcactttggg aggccaaggc aggttggatc acaaggtcag gagtttgaga ccagcctgcc tatcatggtg aaaccctgtc tgtactaaag ataaaaaaaa aaaaatttgc cagtcatggt 360 gatgcatacc tgtaatccca gctactcggg aggctgaggc aggagaatct cttgaacccg 420 480 ggaggcgggg gttgcagtga gctgagattc caccattgca ctccaaccta ggtgacaggg 540 tgagactccg tctcaaaata aaaaaaaaaa aagaaaagga aaggctgtgt gtgtgtgtat 600 gtgtgtgtgt gtgtgtgtgt gtgtgtgtaa cagcaccatc acactgtttg agttgaggag cacatgctga gtgtggctca acatgttacc agaaagcaat attttcatgc ctctcctgat 660 atggcgatgc tecectatet catteetgtg tgtgtttage caggcaactg ttgateatea 720 atattatgat aacgtttctc cactgtccca ttgtgcccac ttttttttt tttttgagtt 780 acttactaaa taaaaataaa acactatttc tcaatagact tgaagcttca agatttcctg 840 900 gtggacaatg aaaccttctc tgggttcctg tatcacaacc tctctctccc aaagtctact 960 gtggacaaga tgctgagggc tgatgtcatt ctccacaagg taagctgatg cctccagctt 1020 cctcagtagg gctgatggca attacgttgt gcagctactg gaaagaaatg aataaaccct tgtccttgta atggtggtga aggggaggga ggtagtttga atacaacttc acttaatttt 1080 1140 acttccctat tcaggcagga attgccaaac catccaggag tggaatatgc aacctggcgt catgggccag ctggttaaaa taaaattgat ttctggctta tcacttggca tttgtgatga 1200 tttcctccta caagggatac attttaagtt gagttaaact taaaaaatat tcacagttct 1260 1320 gaggcaataa ccgtggttaa gggttattga tctggaggag ctctgtctaa aaaattgagg acaggagact ttagacaagg gtgtatttgg agacttttaa gaattttata aaataagggc 1380 tggacgcagt ggcactgagt tgagaactgt tgcttgcttt gcattaaata ggagatcagt 1440





```
1500
ccctgcagct tgtgggaata aggctttaaa tctctccaat tttagctctg tgagatggca
ctggggaaac agaaatgaac ggactagtgt cacaaagctc aggtgggatg gacgagatca
                                                                    1560
                                                                    1620
cttcaaaggt ctgtaatccc acgtctataa tcccagcact ttgggaggcc aaggcgggaa
aatcacttga ggtcaggagt tcgagaccat cctggccaac aatgcaaagc ctgtctctac
                                                                    1680
taaaaatatg aaaattagct cagcgtggtg gcatgctcct gtagtcccag ctactcgtga
                                                                    1740
                                                                    1800
ggctgagaca ggagaatcgt ttgaacctgg gaggcggagg ttgcagtgag ccaatatcac
                                                                    1860
aaqaatttta taaaatcaqq aaataatatt agtgtttatg ttgaatttta actttagaat
                                                                    1920
catagaaaac ttcctctggc atcattatta gacagctctt gtgcagtggg tagcaccaga
                                                                    1980
cccagcttgc atggttattg atttttcaga gacacttttt gagcttattc tctggcagaa
                                                                    2040
aggggaactg cttcctcccc tatctcgtgt ctgcatacta gcttgtcttt acaagaagca
                                                                    2100
gaagtagtgg aaatgtttat tottgaaaat aagotttttg ottcacatga totagaattt
                                                                    2160
ttaaaattag aaaaatgtgc ttactgcg
                                                                    2188
<210> 19
<211> 1183
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1)...(1183)
<223> n = a, t, c, or g
<400> 19
                                                                      60
agtaaaatgg agaattccaa attctgaaat tgttagaaca tagttctgtg tcttagttaa
atategacae ttacagataa atageataaa tgetttetee ceatatttea geecagteet
                                                                     120
acttaaagac aacataaatt gcaaaatagt gaggatgttg ttcatctaat aaaagtggtt
                                                                     180
ccaggaattc agactctgga ttcctgtttg ccaaatcatg tgtcccactc ttaagaaaac
                                                                     240
                                                                     300
qaqttqqact ntqqattttt ctttqcaaqa qqqacaaqaq tqtqqqaqat actqaqttaa
tgcaacttgc aggttttaag tgtcctgtca ttgtgccttg tgctttgata cattctgagt
                                                                     360
                                                                     420
ttcagtaaag agacctgatg cattggactg ttgcaatgga acctgtttta agatcttcaa
                                                                     480
agctgtattg atatgaagtt ctccaaaaga cttcaaggac ccagcttcca atcttcataa
                                                                     540
tectettgtg cttgtetete tttgeatgaa atgetteeag gtatttttge aaggetaeea
                                                                     600
gttacatttg acaagtctgt gcaatggatc aaaatcagaa gagatgattc aacttggtga
ccaagaagtt tctgagcttt gtggcctacc aagggagaaa ctggctgcag cagagcgagt
                                                                     660
acttegttee aacatggaca teetgaagee aateetggtg agtagaettg eteactggag
                                                                     720
                                                                     780
aaacttcaag cactaatgct ttcggaatgt gaggcttttc cttggacagc atgactttgt
tttgtagaaa agtacggctg gctgggagtt tgtgatataa tttagttcag tggtattcta
                                                                     840
agtgttctta gtgttctttc agacttttgg gccatctccc aaagggtgaa tgggaagaat
                                                                     900
                                                                     960
aagctgggtg tggctgagtt taagccaaaa gttttttgtg cttgtttcaa tcagagaaga
cctqcttttt catqttttta ctattataat actaaqcaaq aqctcatttg aaaacagagt
                                                                    1020
tcttcatatt taaaaaaaaa aagtcttgaa accattgatg ggaagatgga tatctattta
                                                                    1080
                                                                    1140
tgtttaaaaa cccatcataa agatgacatt gtgggctgtc acagttggaa ggccctggaa
                                                                    1183
ttagatgaga ccacactatt tagcttactt agtaataaca ttg
<210> 20
<211> 8981
<212> DNA
<213> Homo sapiens
<400> 20
```



ccqtttqqca aatqctcaqt aaaaqaaaaq qqttagaagg ggagaaaggc attttatccc

aagcetteag gaateaggat gaggatgtet teacettgtg gtggggagta attatacaat



60

180 tagagacage acattggagt gtggctgata tgctgtgtga tgatagetet agetetetge ctagcagagg aaggacattt caatagaaga aaaagtttaa gaccttgccg agaaacagag 240 aaaggatgtt tgtcttttta agaagttgaa aaccctgttt gcagacaaaa gccctccagt 300 360 tttggcagta aactttcatg caagggaaga aaaaggcagg ggatgacatt gttgacaatt gtgaggaatt accatgtgcc aggcactgtg cgaggggctt tgtacatatc ctctagtttt 420 480 agtgcttata aaaactctgt gatatgtgca cagcatttta aactttgctg catagtcgag 540 aaaatggaag gatggggaat ttgagtcatt tgcccagggt tctatagcta ccccaggttc 600 ccatqactqq aqaattqqqq cacaqqqtqq cqqqqqaqaq tqaqtqacaa qaatcctaac 660 aatcttattt ccattgagtc cttataaaag aagtggatta actaccacgt ttttaagttt 720 ttcttaaatt taggttatgt ggatctggcg tttcttgttt tgtcctgggt ttgttttgtt 780 tttgctatgc tgtcttgaac atctgtcatc ttgtaggcct aacggtaaac acaaaaacac tttacctcct atagctttca attaagatct ctcagtttgt gtttgtaata gttttccagg 840 caagttctcc ctaggttcgg cttctagtgt gttaaccttt agttataaag tgaacccaaa 900 gagagaaagt agaaacaaaa cacctcacct gtttttgctc atgaattact ctctatggaa 960 ggaacaatca tgaacacctc tgcgtatcac agaggcctat ctgagtctga cgtttaaggg 1020 agaccgcgta ggtccctttg aggactgtga atgtgggagt cctgggactc tggtgaagaa 1080 cccgttccag aagagatgaa tgagctggac aagttctttc atagaacctt taggcaggtt 1140 ttcttagaaa tgcacattga ggattatgct tggatattgt gatgatcaga atgatactca 1200 1260 atcccttctg catttggaat tctctttgaa agaaaacatc ccaggcagct atttctcaga 1320 gatagtgagt cccagccact tctagacatt ttcttgtgta gtctacatta taatttcaca 1380 gcagtctctg atatgacaaa tgtcaaaata gcccaacctt ctctaaactt cagagatgtc tqatatqata ttqaataaaa caatqctcat agaaacatca agaaaggtgg attttccctg 1440 gatacttttt tcctgcttga caaataacag tgaagaaact gatctcacgt ctttttctct 1500 ttggaagcct gaacactcag aacccaactt gaggctcctc agctatagca attctgactt 1560 cacagtotgt aaattattgt totttttttt otttagotta tgotttotgo ootaatttat 1620 cttttccctg ttctaatgaa ttattgtcct atatctgctg tgcagttagg tgacatataa 1680 cagcaattaa atatatgaat tggtacatat aaagatttga ctaaaactcg atgtaaaaaat 1740 aagtgttcta cattcaattt ccagtgttag aaacagtgct gacttgaaca gagtgacaga 1800 attocatctt tccctatttt tgacagcttt aaactttata ttttcttcct ttcttgtgag 1860 ccgtcattaa cttgtttctc aaagccattc ccgtattacc catcttgcag acgcagacag 1920 atttgggaat ttgcggtcag agttgtattg gacacatece eecageecac atgagateet 1980 tttaatctat tgcatattaa ctagttttaa gtacaatatt cctacttcat ttaaaaccat 2040 2100 taatcaaaga atgagtttga aaatgaacaa aatgcaaact tacagttaga aataattgta 2160 gtgtctttag ttttggttag gagtcggttt cttgtttgtt aaactcaaga ttgtgaacag 2220 ttttaattca cttgtttatt tccaatagag atttcaggtt tacatttgaa ttcagaaaca aagttttett teteattaca gagaacaeta aaetetaeat eteeetteee gageaaggag 2280 ctggccgaag ccacaaaaac attgctgcat agtcttggga ctctggccca ggaggtaagt 2340 tgtgtctttc cagtaccagg aagcggatca tccactgtat cagtattttc attcctgagt 2400 ctggcaagag gtccttttga gttgaatatc acatgggatg taatatcaat tttcaaagta 2460 taagtgatgt aaacaataat gttttgattt ccttatttta gaaatgaaga aacctaaaac 2520 tcatagatgt ctcagagcta attggttagt ggctaacagc tggatatcta gtttagaacc 2580 ttctccattt tttctttttq cccctaqqta atcatacatt tqtaaaqaqq aqaattatct 2640 ctgccactgc ccatgcactg cttttgtctg accagcaatt tctccatatt gcttcttcag 2700 tagcaaggcc aatcatttta ccaacacaca tgcttgctaa ctaacaggaa taacgtggta 2760 cccctaattc agccctttcc cttgaaagca tctggcttct gaggttcaac tatgggaata 2820 tggtctctta atgaacatta agttgagttt gccttttagg tccacatgtt gacaaatgta 2880 tcagagtaat ctctgtccta ggatcagagg gcctgtaggc acttgcaaaa gcagttagct 2940 ctgactccca gccagtgcac actccacctt tctgactccc agccttgtct caaattaggc 3000 3060 ttggaagcga ggaactgtct ggtgtccccc agcataggaa gctgagccag ggggcagtgc tcacaaacaa tacagacttt aacgtgtagg atattggaaa ataataattt gtggggaaat 3120 tgtctcagac ttggtccacc cttattttta gctgcttctc taatccgttt ttctttttt 3180 ggtgcttgta tctaacctac ccattttttg gtgcttgcat cattttttca aatatcaaaa 3240 3300 acgaacttta tgttttctaa caatgaaagt attgcatgtt cattgtggaa aatgctgaag 3360 acttggaaaa tacaaaaatg ctgagatcaa acactattga tacgttagtg tatttcttcc





3420 tgtcctgttc tactttcttt ctttgaattc tgctcacgtg tttctgactg atgaggtctg acttttgggt tccttttcca gaggagaagc cttctttcag cttgccattt gttaccctgg 3480 3540 ttatgaaggc tggtaacctt ttttactagg tagagaagct ggaccaactg gggttcttcc 3600 agggggagaa tgagaaagag aaactgtttt gcaagtccgt agctatttct ctagggccct 3660 gttagetgae attgaeatge ettgeattge tetgeagate ceetegeage cetetgteee 3720 ttgttcattt ctggccttag agaaagcaaa gcagggtctg taacagggga ggctgcctct 3780 aaactcaggg tttggttaca gctgttttca cttacatcac tggccctggt ttttttttt 3840 tttctggcat taaaaaaaaa aattggaagc aggtgatgtt cccattgctg atgtggtgga 3900 aactctccaa gtgaacaata tacgtttttc ttggcagctg tttcttgtgc cctgcttgct 3960 cctggtccag gacaagcaag gaccatctgc ctctttcaat agaacacctc cagatccctt tgatcaaaag ttactcattg tctgacttgc tatttctgtg agataaatgg gagaagatca 4020 ataaatgcac ttgtttgtcc agtcagcgtg tggaaagttg ataattttga ccaaagcaca 4080 accetgaaag gaaaagaaaa agggagtgaa tgtettetga gaagetgeet aggtteagae 4140 agtgtcaccc atttccctgt atgctccaca tgacaaacct gagtgggtct catcatgtcc 4200 attttgcaga tggcaccaag gctcagaaag gttaggcaac ttttccagtc acccaatgag 4260 4320 ttaattgaca aaactgggat tcaaacccag aactgttgga ttccaaagcc tgtgttgttg 4380 cctgcttcgt gaaaaactcc agtagcgact ggaatagaaa ggagaacctt ccaagaaaga 4440 aaatacgcac tagcagaacc tggaaattgg gaggaaatga ggacttgagg aataagatga 4500 atqaaaqctq acctqaqttt cacatctqqq tgatqggaag ggaggacagg gaggcagcat 4560 ctcagatgtc cacccagcac cgaccagctg cctggcattg ctaggtgttg aggactcagc 4620 agtgaacacg ctaacttctc tgctttcttg gggcacgtat agggtgagag acagaaacaa 4680 acaggtcagt gtacaatgcc acaggaggga tatatgcagt gaagaaaaag cagggtaagg 4740 ggcatagagc atgagaaggt gcttttttta aaggggktga ttaggaaagc tctctctaag 4800 gtgacagttg gacctgaagg agatgatagc atgtctgtgg tgagggaagg aaactccgaa caggaagaat ggcagataca aagacattga tgctagagca tgcctaagga atgtgtttaa 4860 4920 4980 agtgccatac aggcctggca agactttgga ttcctgctgg gtgagatgag aatccagcgg 5040 agggettgag ggaggggaca tgatgtgate tagagtttag aetgtttaea etetggttgt 5100 tgggttgaga agagactggg atgggggaaa gggaggacaa aggacattgt gctggattga 5160 gaaagcagta agtcagtttc attcattcac tcaaccgatg atgttcaaat accaccatca tccgtgggct aaaggatgaa gagccatccc tccctgagag tcaggaagca cttcccagat 5220 5280 aaagtttgga gtgtgagctg aggtgtagga gaaagagtaa gagtttaccc ctgaaacggg 5340 tgctgggaag agtcaatagt ttggaataac tcaataattt atggtgcttc tttagaaaga 5400 tttgctggct ttatgtggga agaaatttkt ttttttgatt ggggagtggt gggttggtgg 5460 tgaggctgcc tgtggaaaga gaagtgagtg ttttgactca ctgttattta aaaatctcta 5520 gggctgttcc aataagcaac aaaaggcaaa atggcctggt tctctgtccc ctttctgtct 5580 gtatgcctcg tacaggttat gaaaagaaaa agttgggaaa agctgtccac ctcacctaat 5640 tgtgttcttg tggagtgtgc tagatgcccc ctctctggag aaaaaaaatc cttgtggcct 5700 ctgacccacc tctggagagc ctagttccct tctggaggca gaaggcaaag cttaggacct 5760 agagagtget ggaccaegee acteacagga accageagge tgtgaggttg aaagetagge 5820 atatggaget ttecaggetg ggtgeaggge etegtggeee tteceeteee etetgtgete 5880 tatageteag tetteeeagg eggtgtgaac aegeagtgae attteeagga atacagggat 5940 ttattaatga tttcttgtga aatgtttgga aatacaaagt actctataaa tatttcataa 6000 tagcattggg gctgagaact ccacaaagtg ccggaataca tttgcatgta agacagaacg ctgcctgggt cattgatgcc tgttgagtgg cagtcacaga cactgcctag ggtttctgac 6060 tcacgctgtt gggactgttc tatgcagggc accetettgt gtggcatagg atttgtgcet 6120 caccacacac tgttgtagct ttgctgtctt gatgatgagt agagggcagt gtccaggcca 6180 tggtataagc atctactgcc ccccagggtt accaaaacca agccaagttg tgtctcagcg 6240 agctccgtga agcatggaga agttgagtac tcagagacat gacgtgactt ttcaaaggct 6300 6360 gtaagetgae gagggaeata getagggtte agaettgagt tittetittt etitteett ttctttttt tttaagactg agtcttgctt ttgtcgccca ggctggattg cagtggtgct 6420 tggctcactg caacctctgc ctcccgggtt caagcaattc tcctgcctca gcctccccag 6480 6540 tagctgggat tacaggcacc tgccaccatg cctggccaac atttttgtat ttttttagta gagatggggt ttcaccatgt tggccaggct ggtcttgaac tcctgacctc aggtgatcca 6600



```
cccgcctcga cctcccaaag tactgggatt acaggtgtga gccactgcac ccggcccaga
                                                                      6660
ctcgagtttt tcatcttaat gctttttcat tgcctgacac tttactgaga ccaagatagg
                                                                      6720
gaacttcaca tacagtacct tttctcccaa ggcggaagag ggctgttcaa tttctacact
                                                                      6780
                                                                      6840
agagttcggg gagttttaga aatgagtcag ttatcgagga tgagagcagt tcctgatagg
ctcaaccaca atgagatgta gctgttcaga gaaagcattc ttttatctat aaactggaag
                                                                      6900
ataatcccgg tgaaacgaag cccagcccca ggggcttcac taactccagg ctgtgcttct
                                                                      6960
                                                                      7020
caaactttag tgagcatagg aatcacctgg gcatcttgtg aagctgtaga tttgaattct
qcaqqtcqqc aqaqqqtct caqaatccqc atttccaaca atgtctccag taatgctgat
                                                                      7080
gctgctcgtc cctggaccac agattgggta gccaggttct ggcaagctca tcccaaggct
                                                                      7140
                                                                      7200
ttqaqatqac atcaqacaaa atatgttctg ggacatggct tttgagaggt caagaaaata
agatgtttct ttctcttctc atccccaacc cttgcactgc ccttttctcc cttcccctac
                                                                      7260
cctcctttct gtccccatcc ctgacgccag ctgttcagca tgagaagctg gagtgacatg
                                                                      7320
cgacaggagg tgatgtttct gaccaatgtg aacagctcca gctcctccac ccaaatctac
                                                                      7380
caggctgtgt ctcgtattgt ctgcgggcat cccgagggag gggggctgaa gatcaagtct
                                                                      7440
ctcaactggt atgaggacaa caactacaaa gccctctttg gaggcaatgg cactgaggaa
                                                                      7500
gatgctgaaa ccttctatga caactctaca agtgagtgtc catgcagacc ccagccctgt
                                                                      7560
ccccaacccc atccctccct tagttctggc cttggcctgt gtcatctcct ccctctgtag
                                                                      7620
                                                                      7680
cagogttaga tgtctacatg cccatttgcc caccagactg agctcttcct agaggagaga
                                                                      7740
ggettetett gaatagetae etgteeceag ttetetgaat geageetgge acateteagg
tgcacagtag tgtttatcaa tggaatgaat gattgacagc caaccttctg gttttctggg
                                                                      7800
                                                                      7860
ggatgtggaa gggtggcttc cagggtgatc aagaatgaga taatggcaga aggacaaatc
ctgcaagatc tcacttatat atggaatata tgtaaggtag aaagtgtcag tttcacatga
                                                                      7920
tgaataagtt cctgggatct tgatgtacat cgtgatgact atagttagta acactgtata
                                                                      7980
                                                                      8040
gtatacttga aatttgctaa gagagtagat ccgaagtgtt cacactacac aaaaaaggca
actatgaggt gatggattta ttaacagctt gattgtggtg atccttttac aaagtataca
                                                                      8100
tatattaaaa catcacattg tataccttaa atatatacaa tttttatttg tcagttgtaa
                                                                      8160
ctcaaaaaag ctagaaaagc atttttaaaa aggatgatgt actggtctta atattaccat
                                                                      8220
tgagataagc tttataataa cataaaaaga aataacagta atgataatag caacaacaac
                                                                      8280
aacaacaaaq aactaacatt taagtagaat ttcttgtgca ctgtgcattc tgtttaagtt
                                                                      8340
                                                                      8400
atctcatttt accctcatqa taacctqcaq qqaaqattct ttaaccccac atttcatagg
ctcagagagg ttaagtgcct tggttagagc cacatcagag ttaatccaca agagccagga
                                                                      8460
ttcaagccca aatctgcctg gatctgtgct ctctaagata actgttagtg gtggcgtgtg
                                                                      8520
                                                                      8580
tqttctcaca ctcaqacatt tqatctqccc tttqtttccc attcttagct gcaaggcagt
gttaaagaac cetgtgtete catateeact ceceacaett aageaetttt gtgggeeegt
                                                                      8640
gtgccgtatg cctcgtggca gcagggatcc aatgtcacag ttttaggcag tggcatcctt
                                                                      8700
ttccttgaaa acttgatgca ggggaacctt tctccatttc caaccacagg tgtgtctttc
                                                                      8760
agacactgag tgaggcaggt tttgtacttt attgtaacac aagaaccttt tcttctctgg
                                                                      8820
agtaaagcac tccagacatt cgcaagttgc tttacaagcc ttaaaaggat ggtattgtag
                                                                      8880
gcaactttaa ttaaatccca tctcctcctc tcccccagct tgcaagttga cccaaggaag
                                                                      8940
ccttcatttc catgacagac ttaattgtga gggcatcctc a
                                                                      8981
```

```
<210> 21

<211> 20284

<212> DNA

<213> Homo sapiens

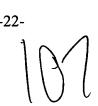
<220>

<221> misc_feature

<222> (1)...(20284)

<223> n = a, t, c, or g

<400> 21
```





60 actgtgttag caaggatggt ctcgatctcc tgacctcgtg atccgcctgt atcggcctcc caaagtgctg ggattacagg cgtgaaccac tgcgccctgt tgagaatttt ttttttttt 120 180 tttgggagaa agagtttcgc tcttgttgcc cgggctagag tgcagtgaca caatctcggc 240 tcactgcaac ctctgcctcc tgggttcaag caattctcct gcctcagcct catgcgtcac 300 cacgcccage taattttgta tttttagtag agacagggtt tetecatgtt ggtcaggetg 360 gtotogaact cocaacctca ggtggttogc cogcettggc ctcccaaagt gctgggattg caggcatgag ccactgcgcc cagccccaaa ttttggtttt tgcttgaaaa ctgaggtctg 420 480 aattcagcct tctggttgcc cctcaagagt cagtttaaat gttggtcatg ttagttgtca 540 gtgaaaacaa tggtgaggct ggcatgagag tgtgaatctg gatgggaggg cttgtgcttc 600 atqaaaacat ttttccagat cagctcagtc gtgagttatc cgtcattgac gttataataa gctctgatta tttatcaagc atcattcttt atagatatct cagtttaatc tgagataatc 660 ttctccacat ctctccacat agatgttatg aattttactt ttacagagga gccaactgag 720 gctcagataa gttacttatt atatgactag tagtggtaga gctggggttt caactaagaa 780 ctctctggct ccaaagccct tgtaagtttc tatcagtata tgaccatgca tatgagcatt 840 tgtctctcct cttcttcata gctccttact gcaatgattt gatgaagaat ttggagtcta 900 960 gtcctctttc ccgcattatc tggaaagctc tgaagccgct gctcgttggg aagatcctgt 1020 atacacetga cactecagee acaaggeagg teatggetga ggtaagetge ceceageeea 1080 agactccctc cccagaatct ccccagaact gggggcaaaa aactcaaggt agcttcagag 1140 gtgtgcgcta agtatactca cggctcttct ggaattccca gagtgaaaac ctcaagtctg 1200 atgcagacca gagctgggcc agctccccag tcgtgggtat agaatcatag ttacaagcag 1260 gcatttcttg gggatgggga ggactggcac agggctgctg tgatggggta tcttttcagg gaggagccaa acgctcattg tctgtgcttc tcctcctttt tctgcggtcc ctggctcccc 1320 acctgactcc aggtgaacaa gaccttccag gaactggctg tgttccatga tctggaaggc 1380 1440 atgtgggagg aactcagccc caagatctgg accttcatgg agaacagcca agaaatggac 1500 cttgtccggg tgagtgtccc tcccattatt accatgtgcc tgcttgatac tggagaggtg agtttctggt cactttccca ggtgtgagtg aggtgagaat tctttcagtt tatctagctg 1560 ggggaatgta gtgagcatag ctaaagtcac agggcaccac ctctccagaa gtacaggcca 1620 tggtgcagag ataacgctgt gcatatcagc atccatgcca ctcacggtca aatagcagtt 1680 ttctgcaaaa cttagtgagg gctggtgttt ggaagtggag ttgagtaatt gcagtaccct 1740 1800 attttccttt ttgctqcaqc ctctcagcca qccacagcat ctccctgtgt cttggtaggt 1860 tttggaaaga agtgtgggag caaaagcatg atgttacatg tagactggcc tgagatactc attctcaggg cactgtgtga atgatgagct gctgttactg tgtggagggg aaatgcactt 1920 1980 agtgetteag agecaettga aagggataag tgetetagag acaattgggt teaaatgtgg 2040 agcaggctga gcaagaacag aatgtctcct ttgcctgagc ctgagtgctg ttaatcacat 2100 cttcctgcct tgggctgagt tagagaatca ttagactatt tcctgtttcc atggtgaggg aggeetette ettttgtete tgeteeeett aagaageagg tgaggatttt geeaggttte 2160 ttgttttgaa ccttattgac tttaagggcg gctgggtttt agagactgta cctacctagg 2220 2280 gggaacactt ccgaagttta ggactattcc ctgatccgct gggaggcagg ttactgagga agtcccttta aaaacaaagg agtttatact gagaaaagca taaacagtga tttgtatgga 2340 ttcacactga ctaatatagc tcatgccatt aaagtggggt ctcttctcta aaggagggtt 2400 2460 atatgateta geecegtaga eetaagtgtg gttteagace tgttetteet ggteetetee ttqqaatcca tatttctact agttqqactt tttctqtttq tctqqctctc agaggattat 2520 aggaggccct gtgaagtgac tcagtgaatt ttgatttgtg ggcaagtaga tggttcccta 2580 2640 gtctgaaatt gactttgcct taggtgcttc aattcttcat aagctcccag ttcttaaagg 2700 acaagatoot tgtaaacatg gcaatggcat tcattaggaa tctagctggg aaaatccagt gtgtatgctt ggaaatgagg gatctggggc tggagagaaa ggcatgggca tgccttggag 2760 2820 ggacttgtgt gtcaagctga ggacctttac tttaagctct aggggaccag gcaaggggag 2880 atgtagatac gttactctga tggggtggat gaattgaaga aggatgaggc aagaatgaag 2940 gcagagacca gggaggaggc tctccaagtg gccaaggcat aaagcaagaa atgaggcctg 3000 gtgactgctt agtggcagag cagtgaaaga gagggaggca tcaaagtgag tctcgatttc 3060 tagctgggtg ggtggtagcg atgtccagta ggccagtggc tactgaggtc tgcagtggag 3120 gagggtggtt gggctggaga cagatgatga gggagtcatc agcctgtggg tggaagaaaa 3180 3240 tggacagagt cttgctctgt cacccaggct gaaatgcagt ggcatgatct tggctcacca



3300 cagceteege etectgggtt caagcaatte teetgtetea geeteeagag tagetgggat tacaggcaca tatcactgtg cccggctaat ttttgtattt tcagtggaga tgggatttca 3360 3420 ccatgttggt cgggctggaa tgaactcctg acctcaagtg atccacctgc ctcagcctcc caaagtgttg ggattacagg catgagccac cgcgcccggc ctttcttccc tctcttaaag 3480 agtgtttatt taattecaca aacatgaget tgteaceeec tgtageetgg catetectae 3540 3600 acgaggtgat ggctgaggct tctgcttctg ctggggtagc tctgatcttt ctgctttctc 3660 tggcactgtc tacccatgtt gcctcacccc acaggtccca gggcacctct ctcgggcaag tettggaace etetgaeact gatttgetet ettttetgag etgettttag ecacecatee 3720 tegggaeetg ttttetetet geeteeacee etgegggeag tettaggtet eetgeeeete 3780 3840 acgagcaccc cagagaggcc acgtgctcag tgatctcagt gggcgcatct ttctagtctt gctattcttt ttggccatgt tgttcagaaa ccatactggg cagggccgac ttcaccctaa 3900 aggetgegte tetteactet gettttgttt gttecaaata aagtggette agaattgeta 3960 accetageet etgtgaactt gtgaggtaca attttgtgte tgttatgtta acaaaaatae 4020 atacatacct tcctggtgat ggtataaatt gctattctct attggaaagc aatttggaat 4080 gaaaatttaa agaaccattt taaaatatgc tatcctgcgt acctccattc cacccacccc 4140 4200 cagggatgta gcctactgaa ataattttaa agaagtcacc atatgagaga aaatgttatt gctatattgt tattgtgaga aattggaaat agactaaatg ttcagcacta taggaataat 4260 4320 taatgaaatt acatatactc tatacaatca ttatgctgcc attgaaataa taaatacaaa 4380 ggcgcaaggg gggaaaagct tataatgtta gtgaaactaa gactgatttt tttataaagc agcagttttc agacccttgg agactccaat tcggtagaac cagagcttca tcttctctgt 4440 cgaagetgtg acaggagttg caaatgeete teetttttge tgagtttgea getgetgttt 4500 ttccggcagc acatctgtgc aggcctctgc ctcggcccct ctggatctgc tgattgagca 4560 geggattgat etgteettet etttegtgtt gacceatgtg aggaaceaac tggeaaggga 4620 acaagaaatg gaaataggcc tcctttgcat catgacctgt acatcctgca attggaaaag 4680 attgtacttt agttggttta accagcagca ttatttttct aaactaagca gtaagaagga 4740 attaggtttt atgtgggatc aacagactgg gtctcaaaag aggaaggtga tagaacacag 4800 tggggagggg gaggtgcact agaaacagag ggcctatgct ttcattctgg ctttgctact 4860 taatagctgt gtgacccaat cttagagact taacctctct gaacttccat tttctcatgt 4920 ataaaatggg aaatattaaa ggatactcac tgggctggtg gcttgtgcct gtaatcccag 4980 5040 cacttgggga ggttgaggtg ggaggatcac ttgagcccag gtgttcaaga ccaqcccagg 5100 caacatggca agactctgtc tctatgaaaa aattaaaaaat tagccaggtg tggtgtgtg cacctgtagt cttagctact tggtaggctg agatgggagg atcacttggg cttgggaggt 5160 caaggctgcg gtgagctgtg attccatcac tgcactccag cccgggcggc agagcgagac 5220 actgaatcca aacgacaaca acaacaaaag gcaaaaaaat aaaagtgccc tctttatgga 5280 gttgtgtaag gtgaagcata tacactattc aacatagtaa ctatataaag gaagtattgt 5340 tgttgttact gtagttaata ccattaagtg agatgtttcg tatagtggaa agcacatgga 5400 ctctgaattc agactggtct gactttgagt ctcagctcca catctagtaa tactatgacc 5460 aagccctggt taaaatcatg ttttttttt ttcagcctca gtcttctcac atataaaata 5520 gggacactgt catttacctc agttttctgt gaggataaaa caacgacagt gtatatgcaa 5580 gtattttgta aattttgtag tgctcctcaa gatttagttg gtgtttacta cttgtacttt 5640 ctcactggaa tggcagatgc tgttggacag cagggacaat gaccactttt gggaacagca 5700 gttggatggc ttagattgga cagcccaaga catcgtggcg tttttggcca agcacccaga 5760 ggatgtccag tccagtaatg gttctgtgta cacctggaga gaagctttca acgagactaa 5820 ccaggcaatc cggaccatat ctcgcttcat ggaggtgaat ctgttgctgg gatcatttag 5880 aaaagactta acggcttctt tctctgagac gttacaataa ggttcaggca ggaggcaagt 5940 ttagaaataa tgtatagtct catttacaaa actatccctc aagcctaaca caggatttga 6000 taacaaaagg cacttaataa atgttagttg agtggttgaa tgagtaaata aactctagct 6060 ttagtaaatt aactctagct tattctatat aggctcaaga gaatatttct acccattttc 6120 ttctaggttt tcctatctca gtgactaatg gtagcaaagc attcccttaa aaaggcatta 6180 tttgtgaaac ttayctaaaa tcgaattcgg gtccaattaa atttttgaaa ttttatatta 6240 aaaattatat tagtagggat gggtaagagg tgttttggtc tggttggttg gttagttgct 6300 atgactcaga attgctaaga aaacagaaaa gtaagataag atcattgttt taacctcttt 6360 tcctccacaa aatcaataaa taacatatcc ctaaattact cttagaattt ctcttaaatt 6420 gcagtgaaaa accaaaatcc ttcattcttg gttgaaggtt ggaaaactac gttagagagg 6480



6540 attagagaga gaggatgagc aatcgtgtag tcagcccttg cctcctagtg taggatttgt ctcaqccact gcttgttgtc ctggctgcca acgttctcat gaaggctgtt cttctatcag 6600 6660 tgtgtcaacc tgaacaagct agaacccata gcaacagaag tctggctcat caacaagtcc 6720 atggagetge tggatgagag gaagttetgg getggtattg tgtteaetgg aattacteem 6780 rgcagcattg agctgcccca tcatgtcaag tacaagatcc gaatggacat tgacaatgtg gagaggacaa ataaaatcaa ggatgggtaa gtggaatccc atcacaccag cctggtcttg 6840 6900 gggaggtcca gagcacctat tatattagga caagaggtac tttattttaa ctaaaaattt ggtagaaatt tcaacaacaa caaaaaaact caacttggtg tcatgatttt ggtgaaattg 6960 7020 gtacatgact tgctggaagg tttttcatag gtcataaaat aacagtatct tttgatttag 7080 catttctact caagggaatt aattccagga attttggtgg caggcacctg taatcccagc tactcgggag gctgaggcag gagaattgct tgaacccagg aggcagaggt tgcagtgagc 7140 taagatcgca tcattgcact cccgcctggg caataagagt gaaactccat ctcaaaaaaa 7200 aaaaagatac aaaaatagaa aaaggggctt ggtaagggta gtagggtttt gggcaatttt 7260 ttttttttt ttttttta ttgtatggtt ctaaaggaat ggttgattac ctgtggtttg 7320 7380 gttttaggta ctgggaccct ggtcctcgag ctgacccctt tgaggacatg cggtacgtct 7440 gggggggctt cgcctacttg caggatgtgg tggagcaggc aatcatcagg gtgctgacgg 7500 gcaccgagaa gaaaactggt gtctatatgc aacagatgcc ctatccctgt tacgttgatg 7560 acatgtaagt tacctgcaag ccactgtttt taaccagttt atactgtgcc agatgggggt gtatatatgt gtgtgcatgt gcatgcatgt gtgaatgatc tggaaataag atgccagatg 7620 taagttgtca acagttgcag ccacatgaca gacatagata tatgtgcaca cactagtaaa 7680 7740 cctctttcct tctcatccat ggttgccact tttatctttt tatttttatt ttttttttg 7800 agatggagtc tcgctctgac gcccaggctg gagtgcagtg gctcgatctc ggctcactgc aacctttgcc tcccgggttc aagctattct cctgcctcag cctccacagt agctgggact 7860 7920 acaggeteat getgecaege eeggetgaet tittgtatit tagtagagae gaggtiteae 7980 catgttaccc aggctagact tcaactcctg agctcaggca atccaccctc cttggcctcc 8040 caaagtgctg ggattacagg tgtgagccac tgcacccagc ccaccacttt aattttttac actictaccet titiggicaaa attigeteaa teigeaaget taaaatgigt catgacaaac 8100 acatgcaagc acatactcac acatagatgc agaaacagcg tctaaactta taaaagcaca 8160 gtttatgtaa atgtgtgcac ttcttctccc taggtggtaa accacatttc aaaacaaccc 8220 8280 aaataaaact qaacaaaqct tcttcctctt aqacttttta qaaaatcttt caqtqctqaq 8340 tcactaagct gccaagttct cattgtggga actatgcctt tggatgtaat gatttcttct 8400 aagacaatgg gcggaggtgt agttattgca gacatctgaa atatgtaatg tttcttccag 8460 tgtgtgtgtg tgtgtgtgt tgtgtaggga tcaggatgcg ggaggagctg ggttctgctt 8520 8580 gtattggttc tctgttttgc attgaatagt gtgtttcctt gtatggctat ctatagcttt tcaaggtcac cagaaattat cctgtttttc accttctaaa caattagctg gaatttttca 8640 aaggaagact tttacaaaga cccctaagct aaggtttact ctagaaagga tgtcttaaga 8700 8760 cagggcacag gagttcagag gcattaagag ctggtgcctg ttgtcatgta gtgagtatgt gcctacatgg taaagctttg acgtgaacct caagttcagg gtccaaaatc tgtgtgcctt 8820 8880 tttactttgc acatctgcat tttctattct agcttggaat ctgaaacatt gacaagagct qcctqaaatq tatqtctqtq qtqtqattaq agttacqata agcaagtcaa tagtgagatg 8940 accttggaga tgttgaactt ttgtgagaga atgagttgtt tttttgtttt ggtttttagt 9000 actttaacat aatctacctt tagtttaagt atcgctcaca gttacctagt tactgaagca 9060 9120 agececeaaa gaaatttggt ttggcaacac tttgttagee tegtttttet etetacattg 9180 cattgctcgt gaagcattgg atcatacgta catttcagag tctagagggc ctgtccttct 9240 gtggcccaga tgtggtgctc cctctagcat gcaggctcag aggccttggc ccatcaccct 9300 ggctcacgtg tgtctttctt tctccccttg tccttccttg gggcctccag ctttctgcgg 9360 gtgatgagcc ggtcaatgcc cctcttcatg acgctggcct ggatttactc agtggctgtg 9420 atcatcaagg gcatcgtgta tgagaaggag gcacggctga aagagaccat gcggatcatg ggcctggaca acagcatcct ctggtttagc tggttcatta gtagcctcat tcctcttctt 9480 9540 gtgagegetg geetgetagt ggteateetg aaggtaagge ageeteacte getetteeet 9600 gccaggaaac tccgaaatag ctcaacacgg gctaagggag gagaagaaga aaaaaaatcc aagcetetgg tagagaaggg gteatacetg teattteetg caattteate catttatagt 9660 9720 tggggaaagt gaggcccaga gaggggcagt gacttgccca aggtcaaccc agccgggtag





9780 cagctaagta ggatgagagt gcagggttca tgctttccag ataaccacat gctcaactgt gccatgctgt ctcattggta gtggttcatg gcagcatctg aaagctattt attttcttag 9840 9900 atatattggg tggcgattct tcctaagttt ctaagaacaa taatcagaag gatatatatt 9960 gttgcaggtt agactgtctg gaagcagagg ctgaaataga gtttgatgta tgggtattta tgagggctca atacctatgg aagagatatg gaagatgcag gattgggcag agggaggagt 10020 10080 tgaactgtga tatagggcca accccgtggg gcactctaga gaatatgcag cttgttggag 10140 ttqttcttca tcqaqctqaa acatccaqcc ctttqtgctc ccccaaggcc tccctcctga 10200 caccacctac ctcagccctc tcaatcaatc actggatgtg ggctgccctg ggaaggtcgt gccccagggc ctacatggct ctctgctgct gtgacaaacc cagagttgct gatgcctgag 10260 10320 tttgtgtctg aaccatacat taatatattt atatccgaat tttctttctc tgcaagcatt 10380 tcatataaag acacatcagg taaaaataaa tgtttttgaa gcaaaaggag tacaaagaga 10440 taagaactaa ctaatttaat actagttacc atctgttaca aatagttcct actgattgcc 10500 aaggactgtt taaacacatc acatgggctt cttcttctat cctcactaac ccttttaaca 10560 10620 gacaaggaaa tgaggctcag gaaggtcaag gactttattg aggttccaca gtaggataca gttcttgcta aaagcaaccc ctccctcatg ctctgttatc taactgcaag gggaaggtca 10680 gtggcagagg tagtggtccc atggttggtg cataagagct gctctgagac aactgcatgc 10740 10800 tqqtqqqtcc tqcaqacatq tacccatcag ccgqagatag gctcaaaaata tccacaagag 10860 tttggatgat tgtgggaatg cagaatccat ggtgatcaag agggaaagtc aagttgcctg 10920 gccattttcc ttggctttta gacagaaaag ttacgtggga tattatctcc cacagctctt 10980 ctgtggtgcc accagtcata gtccttatat aaggagaaac cagttgaaat tacctattga 11040 agaaacaaag agcaaactcg cccactgaaa tgcgtagaaa gccctggact ctgttgtatt cataactctg ccattatttt tctgcgtagt tttgggtaag tcacttatct tctttaggat 11100 11160 ggtaatgatc agttgcctca tcagaaagat gaacagcatt acgcctctgc attgtctcta 11220 acatgagtag gaataaaccc tgtctttttt ctgtagatca tacaagtgag tgcttgggat tgttgaggca gcacatttga tgtgtctctt ccttcccagt taggaaacct gctgccctac 11280 agtgatecea gegtggtgtt tgtetteetg teegtgtttg etgtggtgae aateetgeag 11340 tgcttcctga ttagcacact cttctccaga gccaacctgg cagcagcctg tgggggcatc 11400 11460 atctacttca cgctgtacct gccctacgtc ctgtgtgtgg catggcagga ctacgtgggc ttcacactca agatcttcgc tgtgagtacc tctggccttt cttcagtggc tgtaggcatt 11520 tgaccttcct ttggagtccc tgaataaaag cagcaagttg agaacagaag atgattgtct 11580 11640 tttccaatgg gacatgaacc ttagctctag attctaagct ctttaagggt aagggcaagc 11700 tgaatggaat ttttccgaga gccagactgc atcttgaact gggctgggga taaatggcat 11760 11820 tgaggaatgg cttcaggcaa cagatgccat ctctgccctt tatctcccag ctctgttggc 11880 tatgttaagc tcatgacaaa ccaaggccac aaatagaact gaaaactctt gatgtcagag 11940 atgacetete ttgtetteet tgtgteeagt atggtgtttt gettgagtaa tgttttetga 12000 actaagcaca actgaggagc aggtgcctca tcccacaaat tcctgacttg gacacttcct 12060 tccctcgtac agagcagggg gatatcttgg agagtgtgtg agcccctaca agtgcaagtt 12120 gtcagatgtc cccaggtcac ttatcaggaa agctaagagt gactcatagg atgctcctgt tgcctcagtc tgggcttcat aggcatcagc agccccaaac aggcacctct gatcctgagc 12180 catccttggc tgagcaggga gcctcagaag actgtgggta tgcgcatgtg tgtgggggaa 12240 12300 caggattgct gagccttggg gcatctttgg aaacataaag ttttaaaagt tttatgcttc actgtatatg catttctgaa atgtttgtat ataatgagtg gttacaaatg gaatcatttt 12360 atatgttact tggtagccca ccactcccta aagggactct ataggtaaat actacttctg 12420 12480 caccttatga ttgatccatt ttgcaaattc aaatttctcc aggtataatt tacactagaa gagatagaaa aatgagactg accaggaaat ggataggtga ctttgcctgt ttctcacaga 12540 gcctgctgtc tcctgtggct tttgggtttg gctgtgagta ctttgccctt tttgaggagc 12600 agggcattgg agtgcagtgg gacaacctgt ttgagagtcc tgtggaggaa gatggcttca 12660 atctcaccac ttcggtctcc atgatgctgt ttgacacctt cctctatggg gtgatgacct 12720 12780 ggtacattga ggctgtcttt ccaggtacac tgctttgggc atctgtttgg aaaatatgac 12840 ttotagotga tgtcctttct ttgtgctaga atctctgcag tgcatgggct tccctgggaa 12900 gtggtttggg ctatagatct atagtaaaca gatagtccaa ggacaggcag ctgatgctga 12960 aagtacaatt gtcactactt gtacagcact tgtttcttga aaactgtgtg ccaggcagca

Bi

tgcaaaatgt tttatacaca ttgcttcatt taattctcac aaggctactc tgaagtagtt 13020 actataataa ccagcaattt tcaaatgaga gaactgtgac tcaaagacgt taagtaacca 13080 gctttggtca cacaactgtt aaatgttggt acgtggaggt gaatccactt cggttacact 13140 gggtcaataa gcccaggcga atcctcccaa tgctcaccca attctgtatt tctgtgtcct 13200 13260 cagagggggt acaactagga gaggttctgt ttcctgagta caggttgtta ataattaaat 13320 atactaqctc taaqqcctqc ctqtqattta attaqcattc aataaaaatt catgttgaat 13380 ttttctttag tacttctttc ttaatataat acatcttctt gaccaagtcc aagaggaacc 13440 tgcgttggac agttttcata tgagatcaaa ttctgagaga gcaagattta accctttttg gttcaccttc tgatcctccc ctaaggaggt atacatgaaa tatttattac tcctgcctga 13500 acttetttea ttgaatatge aattttgeag catgeagatt etggatttaa attetgagte 13560 ttaacttact ggctgaggga ccttggatag gctccttatc cctcagtttc ctcatctcta 13620 aaatggggat ggcacctgcc ccgtgggttg ttggaaggac ttacagaggt gcagaatgta 13680 cgttgtacat agcaggtttc agcaaatgtt agctccctct ttccccacat ccattcaaat 13740 ctgttccttc tccaaaggat gtgtcaagga ggaaatggac ctggctggga aaccctcaga 13800 13860 atactgggat gatgctgage ttggetcata cetgtgettt gettteagge cagtacggaa ttcccaggcc ctggtatttt ccttgcacca agtcctactg gtttggcgag gaaagtgatg 13920 13980 agaagagcca ccctggttcc aaccagaaga gaatgtcaga aagtaagtgc tgttgacctc 14040 ctgctctttc tttaacctag tgctqctqcc tctgctaact gttgggggca agcgatgtct 14100 cctgcctttc taaaagactg tgaaaccact ccaggggcag agaaatcaca tgcagtgtcc 14160 ctttccaaat cctcccatgc catttatgtc caatgctgtt gacctattgg gagttcacgg 14220 totogatoco tgagggacat tttotttgtt gtottggott ctagaagagt atottttact 14280 tgcccctcc caaacacaca tttcatggtc tcctaacaag ctagaagaaa gaggtaaaga 14340 caagegtgat tgtggaacca tageeteget geetgeetgt gacatggtga cetgtgtate 14400 agectgtgtg ggetgagace aagtggetac cacagagete agectatget teataatgta atcattaccc agatccctaa tcctctcttg gctcttaact gcagacagag atgtccacag 14460 ctcatcaaag gctctgcttc tgggttcttt gtgcttagag tggcttccta aatatttaat 14520 aggteeettt tetgeeagte tettetgtge ceateceetg attgeeettg gtaaaagtat 14580 qatqcccctt agtgtagcac gcttgcctgc tgttcctaat catcttctcc tacctcctct 14640 14700 ttacacctaq ctcctqtttc agtcacctag aaatgctcac agtcgctgga atatgtcatg ttcttccaca cctccatgcc tttgtaggta ctgtttgctc tcacaggaga actttctctc 14760 taacttgcct atcttctcaa ctcctccttt ctctccaaga tctagttccg gatcccctcc 14820 14880 cctgagcatc cctccttggt tctcaggtag tcagtcactc tctgccctga acttccatgg cacgtgaaag aaaatctttt tattttaaaa caattacaga ctcacaagaa gtaatacaaa 14940 ttacatgagg gggttccctt aaacctttca tccagtttcc ccaatggtag cagcatgtgt 15000 15060 aactgtagaa tagtatcaaa accatgaaat tgacataggt acaattcaca aaccttcttc 15120 agatttcact agetttatgt gegeteattt gtgtgtgtgt gtgcgtattt agttctatge aattttatca tgtgtgaatt catgtaatta ctagctcagt caagctgcag aaatatctca 15180 15240 ttgtcacaaa gctccttcat gctacccctt aatggccaca gccacctccc ttcttcctca 15300 gttcctgaca cctgtcaacc actaatgcgt tcctcgtttt tacagtttta ttatttctag aatgttacat aaatggaacc atacagtagg tatccttttg atactggctt ttttttttt 15360 ttcactcagc agtattccct tagatctatc caagttgtgt gtgtcaacag ttcattcctc 15420 ttcactgctg agtagtgttc cctgggaggg gtgtatcaca gttccatggc atttttagat 15480 gtatttttta aacagettte ageateetet attttaattg tteateaagt cettttteee 15540 aatagactct gaatgctcct ttatcatcgt attcccatca ccaacatcag tacccaaata 15600 ggccctaaat aaacatttat agcctcctgc ctgcctgaga aaccagggtg gacatggaga 15660 15720 gaaggcactt ctgaaagttc aagcgcagtg csctgtgtcc ttacactcca ctcctcagtg 15780 ctttctgtgg gttcatttct gtcttctctc ctgtcacagt ctgcatggag gaggaaccca 15840 cccacttgaa gctgggcgtg tccattcaga acctggtaaa agtctaccga gatgggatga 15900 aggtggctgt cgatggcctg gcactgaatt tttatgaggg ccagatcacc tccttcctgg 15960 gccacaatgg agcggggaag acgaccacca tgtaagaaga gggtgtggtt cccgcagaat 16020 cagccacagg agggttctgc agtagagtta gaaatttata ccttaggaaa ccatgctgat 16080 ccctqqqcca aqqqaaqqaq cacatgagga gttgccgaat gtgaacatgt tatctaatca 16140 tgagtgtctt tccacgtgct agtttgctag atgttatttc ttcagcctaa aacaagctgg 16200 ggcctcagat gacctttccc atgtagttca cagaattctg cagtggtctt ggaacctgca

B



gccacgaaaa gatagattac atatgttgga gggagttggt aattcccagg aactctgtct 16260 ctaagcagat gtgagaagca cctgtgagac gcaatcaagc tgggcagctg gcttgattgc 16320 cttccctgcg acctcaagga ccttacagtg ggtagtatca ggaggggtca ggggctgtaa 16380 agcaccageg ttagecteag tggetteeag caegatteet caaccattet aaccatteea 16440 aagggtatat ctttgggggg tgacattctt ttcctgtttt ctttttaatc ttttttaaa 16500 acatagaatt aatattat gagcttttca gaagattttt aaaaggcagt cagaaatcct 16560 actacctaac acaaaaattg tttttatctt tgaataatat gttcttgttt gtccattttc 16620 catgcatgcg atgttaggca tacaaaatac attttttaaa gaatactttc attgcaaatt 16680 ggaaacttcg tttaaaaaat gctcatacta aaattggcat ttctaaccca taggcccact 16740 tgtagttatt taccgaagca aaaggacagc tttgctttgt gtgggtctgg tagggttcat 16800 tagaaaggaa tgggggggt gggagggttg gtgttctgtt ctctctgcag actgaatgga 16860 gcatctagag ttaagggtag gtcaaccctg acttctgtac ttctaaattt ttgtcctcag 16920 gtcaatcctg accgggttgt tccccccgac ctcgggcacc gcctacatcc tgggaaaaga 16980 cattegetet gagatgagea ecateeggea gaacetgggg gtetgteece ageataaegt 17040 gctgtttgac atgtgagtac cagcagcacg ttaagaatag gccttttctg gatgtgtgtg 17100 tgtcatgcca tcatgggagg agtgggactt aagcatttta ctttgctgtg tttttgtttt 17160 ttcttttttt ctttttatt tttttgagat ggagtctcgc tctgtagcca ggctggactg 17220 17280 tagtggcgcg atctcggctc actgcaacct tggcctccca ggttcaagcg attctcctgc ctcagcctcc cgagtagctg ggactctagg cacacaccac catgcccagc taatttttgt 17340 gtttttagta gagacggggt ttcaccatgt tggccaggat ggtctcaatg tcttgacctc 17400 gtgatccgcc cacctcggtc tcccaaagtg ctgggaacac aggcatgagc cactgtgtct 17460 ggccacattt tactttcttt gaatatggca ggctcacctc cgtgaacacc ttgagaccta 17520 gttgttcttt gattttagga gaagtgggag gtgaatggtt gagctgtaga ggtgacatca 17580 gcccagccag tggatggggg cttgggaaac attgcttccc attattgtca tgctggaggg 17640 ccctttagcc catcctctcc ccccgccacc ctccttattg aggcctggag cagacttccc 17700 agacctggta gtgcttcagg gccctggtat gatggaccta tatttgctgc ttaagacatt 17760 tgctcccact caggttgtcc catcagccat aaggccccca gggagcccgt gtgatggagc 17820 agagagagac ctgagctctg caatcttggg caaggctttt cccttatgtt tcttcttatc 17880 taaagtgaac agctggggct catgtgctcc ctcctcatct aaagtgaaca catggggctc 17940 atgtgcaggg tcctccccqc tttcagagcc tgaggtcccc tgaggctcag gaaggctgct 18000 ccaggtgagt gccgagctga cttcttggtg gacgtgctgt ggggacagcc cattaaagac 18060 cacatettgg ggccctgaaa ttgaaagttg taactgcctg gtgcatggtg gccaggcctg 18120 ctggaaacag gttggaagcg atctgtcacc tttcactttg atttcctgag cagctcatgt 18180 ggttgctcac tgttgttcta ccttgaatct tgaagattat ttttcagaaa ttgataaagt 18240 tattttaaaa agcacgggga gagaaaaata tgcccattct catctgttct gggccagggg 18300 acactgtatt ctggggtatc cagtagggcc cagagctgac ctgcctccct gtccccaggc 18360 tgactgtcga agaacacatc tggttctatg cccgcttgaa agggctctct gagaagcacg 18420 tgaaggcgga gatggagcag atggccctgg atgttggttt gccatcaagc aagctgaaaa 18480 gcaaaacaag ccagetgtca ggtgcggccc agagetacet tecetateec teteceetee 18540 tecteegget acacacatge ggaggaaaat cagcactgee ceagggteee aggetgggtg 18600 cggttggtaa cagaaacttg tccctggctg tgcccctagg tcctctgcct tcactcactg 18660 tctggggctg gtcctggagt ttgtcttgct ctgttttttt gtaggtggaa tgcagagaaa 18720 gctatctgtg gccttggcct ttgtcggggg atctaaggtt gtcattctgg atgaacccac 18780 agctggtgtg gacccttact cccgcagggg aatatgggag ctgctgctga aataccgaca 18840 aggtgcctga tgtgtattta ttctgagtaa atggactgag agagagcggg gggcttttga 18900 gaagtgtggc tgtatctcat ggctaggctt ctgtgaagcc atgggatact cttctgttak 18960 19020 cacagaagag ataaagggca ttgagactga gattcctgag aggagatgct gtgtctttat 19080 tcatcttttt gtccccaaca tggtgcacta aatttatggt tagttgaaag ggtggatgct taaatgaatg gaagcggaga ggggcaggaa gacgattggg ctctctggtt agagatctga 19140 19200 tgtggtacag tatgaggagc acaggcaggc ttggagccaa ctctggcttg gccctgagac attgggaaag tcacaacttg cctcaccttc tttgccgata ataatagtgg tgcgttacct 19260 catagaggat taaattaaat gagaatgcac acaaaccacc tagcacaatg cctggcatat 19320 agcaagttcc caaataaaat qcgtactqtt cttacctctq tqaqqatqtq qtacctatat 19380 atacaaagct ttgccattct aggggtcata gccatacagg gtgaaaggtg gcttccaggt 19440



ctcttccagt	gcttacccct	gctaatatct	ctctagtccc	tgtcactgtg	acaaatcaga	19500
actgagaggc	ctcacctgtc	ccacatcctt	gtgtttgtgc	ctggcaggcc	gcaccattat	19560
tctctctaca	caccacatgg	atgaagcgga	cgtcctgggg	gacaggattg	ccatcatctc	19620
ccatgggaag	ctgtgctgtg	tgggctcctc	cctgtttctg	aagaaccagc	tgggaacagg	19680
ctactacctg	accttggtca	agaaagatgt	ggaatcctcc	ctcagttcct	gcagaaacag	19740
tagtagcact	gtgtcatacc	tgaaaaaggt	gagctgcagt	cttggagctg	ggctggtgtt	19800
gggtctgggc	agccaggact	tgctggctgt	gaatgatttc	tccatctcca	ccccttttgc	19860
catgttgaaa	ccaccatctc	cctgctctgt	tgcccctttg	aaatcatatc	atacttaagg	19920
catggaaagc	taaggggccc	tctgctccca	ttgtgctagt	tctgttgaat	cccgttttcc	19980
ttttcctatg	aggcacanag	agtgatggag	aaggtcctta	gaggacatta	ttatgtcaaa	20040
gaaaagagac	ttgtcaagag	gtaagagcct	tggctacaaa	tgacctggtc	gttcctgctc	20100
attacttttc	aatctcattg	accttaactt	ttaaactata	aaacagccaa	tatttattag	20160
	catgccagag					20220
tttatatagc	gttgttacca	tttcaacctt	tttttttt	taacctctat	catctcaatt	20280
aaag						20284

<210> 22 <211> 7052 <212> DNA

<213> Homo sapiens

<400> 22

60 gtgaacacac attaaagcat gagaagcatg aactagacat gtagccaggt aaaggccttg 120 ctgagatggt tggcaaaggc ctcattgcag cattcattgg caggccacag ttcttttggc 180 agetetgett cetgacettt cacceteagg aagegagget gtteacaegg cacacacatg ccagacaggg teetetgaag ccaeggetge cagtgeatgt gteecaggga aagettttte 240 ctttagttct cacacaacag agcttcttgg aagccctccc cggcgaaggt gctggtggct 300 360 ctgccttgct ccgtccctqa cccgttctca cctccttctt tgccatcagg aggacagtgt 420 ttctcagage agttctgatg ctggcctggg cagcgaccat gagagtgaca cgctgaccat 480 cggtaaggac tctggggttt cttattcagg tggtgcctga gcttccccca gctgggcaga 540 gtggaggcag aggaggagag gtgcagaggc tggtggcgct gactcaaggt ttgctgctgg 600 gctggggctg ggtggctgcg ggggtgggag cagcttggtg gcgggttggc ctaatgcttg 660 ctggggtgcc tggggctcgg tttgggagct agcagggcag tgtcccagag agctgagatg 720 attggggttt ggggaatccc ttaggggagt ggacactgaa taccagggat gaggagctga 780 gggccaagcc aggagggtgg gatttgagct tagtacataa gaagagtgag agcccaggag 840 atgaggaaca gccttccaga tttttcttgg gtagcgtgtg taggaggcca gtgtcaccag 900 tagcatatgt ggaacagaag tettgaceet tgetatetet geetagteet aatggetgge 960 ttttcccagg aaggettctg cttccatgga ctgttagatt aaccetttat ttaggtaaat 1020 gagggaacct actttataag cataggaaag ggtgaagaat cttttaagat tcctttactc 1080 aagttttett ttgaagaate eeagagetta ggeaatagae accagaettt gageeteagt tatccattca cccatccacc cacccaccca cccatccttc catcctccca tcctcccatt 1140 cacccatcca cccatccage tgtccaccca ttctacactg agtacctata atgtgcctgg 1200 ctttggtgat acaaaggtga ataagacata gtcctttcct ttgcccccaa ccctcagacc 1260 agagatgaac atgtggaatg acctaaacac ctggaacagg tgtggtgtat gagcggcagg 1320 cctctgatga gagggtgggg gatggccagc cctcactccg aagcccctct gagttgattg 1380 agccatcttt gcattctggt cctgcagatg tctctgctat ctccaacctc atcaggaagc 1440 atgtgtctga agcccggctg gtggaagaca tagggcatga gctgacctat gtgctgccat 1500 1560 atgaagctgc taaggaggga gcctttgtgg aactctttca tgagattgat gaccggctct 1620 cagacctggg catttctagt tatggcatct cagagacgac cctggaagaa gtaagttaag tggctgactg tcggaatata tagcaaggcc aaatgtccta aggccagacc agtagcctgc 1680 1740 attqqqaqca qqattatcat qqaqttaqtc attqaqtttt taggtcatcq acatctqatt 1800 aatgttggcc ccagtgagcc atttaagatg gtagtgggag atagcaggaa agaagtgttt





1860 tectetgtae cacagtacat geetgagatt tgtgtgttga aaccagtggt acctaacaca tttacatccc aaccttaaac tcctatgcac ttatttaccc tttaatgagc ctctttactt 1920 1980 aagtacagtg kgaggaacag cggcatcagg atcacttggg aacttgttag aaattcagca acttgggccc agctcagacc tactgaatca gaatcaggag caattctctg gtgtgactgt 2040 gtcacagcca ggtatcaact ggattctcat acataggaaa tgacaaacgt ttatggatgg 2100 atagtetaet tgtgeeaggt getgagattt gttttttgtt ttttgatttt tttttaatea 2160 2220 ctgtgacctc atttaattct caaaaaaaga tgaaaaaatg aacactcagg aatgctgaca tgagattcag aatcaggggt ttggggcttc aaagtccatc ctctctttat ccatgtaatg 2280 cctcccctta gagatacaac atcacagacc ttgaaggctg aaggggatat aaaagctgtc 2340 2400 tggccaagtg gtctccaagc ttgacagtgc agcagaatca cctggggata ttattaaaaa taaacatact aaggtttggc ttcagggcct gtgaatcaga atttctggag gtgaggcctt 2460 gaagtetgta tttetattge ataetttgga cacagtggte tatagaetag agtttggaaa 2520 tgattgcgct cattcagatt ctcttctgat gtttgaattg ctgccatcat atttctagtg 2580 ctctatttcc tcctgctcat tctgtcttgg ataacttatc atagtactag cctactcaaa 2640 gatttagagc cacagtcctg aaagaagcca cttgactcat tccctgtagg ttcagaataa 2700 atttettetg egeagtgtet gteatagett tttttaaatt ttttttatt tttgatgaga 2760 2820 ctggagtttt gctcttattg cccaagctgg agtgcagtgg tgcgattttg gctcactgca 2880 acctccacct cccaqqttca aqcqattctc ctqcctcaqc ctcccaaqta qctqagatta caaqcatqtq ctaccacqcc caqctaattt tqtattttta qtaqaqatqq qttttatcca 2940 3000 tgttggtcag gctggtctcg agctccagac ctcaggtgat ctgcccgcct cggcctccca 3060 aagtgctggg attataggcc tgagccacag cgctcagcca taactttaat ttgaaaatga ttgtctagct tgatagctct caccactgag gaaatgttct ctggcaaaaa cggcttctct 3120 cccaggtaac tctgagaaag tgttattaag aaatgtggct tctactttct ctgtcttacg 3180 gggctaacat gccactcagt aatataataa tcgtggcagt ggtgactact ctcgtaatgt 3240 tggtgcttat aatgttctca tctctctcat tttccagata ttcctcaagg tggccgaaga 3300 gagtggggtg gatgctgaga cctcaggtaa ctgccttgag ggagaatggc acacttaaga 3360 tagtgccttc tgctggcttt ctcagtgcac gagtattgtt cctttccctt tgaattgttc 3420 tattgcattc tcatttgtag agtgtaggtt tgttgcagat ggggaaggtt tgttttgttg 3480 taaataaaat aaagtatggg attettteet tgtgeettea gatggtaeet tgeeageaag 3540 3600 acqaaacaqq cqqqccttcq qqqacaaqca qaqctqtctt cqcccqttca ctqaaqatga 3660 tgctgctgat ccaaatgatt ctgacataga cccaggtctg ttagggcaag atcaaacagt gtectactgt ttgaatgtga aattetetet catgetetea cetgttttet ttggatggee 3720 tttagccaag gtgatagatc cctacagagt ccaaagagaa gtgaggaaat ggtaaaagcc 3780 acttgttctt tgcagcatcg tgcatgtgat caaacctgaa agagcctatc catatcactt 3840 cctttaaaga cataaagatg gtgcctcaat cctctgaacc catgtattta ttatcttttc 3900 tgcggggtcc tagtttcttg tatacattag gtgtttaatt gttgaacaaa tattcattcg 3960 agtagatgag tgattttgaa agagtcagaa aggggaattt gctgttagag ttaattgtac 4020 4080 cctaagactt agatatttga ggctgggcat ggtggctcat gccagtaatc ccagcgcttt gagaggctga ggtgggtaga tcacctgagg tcaggagttt gagaccagtc tgaccaacaa 4140 ggtgaaaccc cgtctctact aaatacaaaa aattagccga gtgtggtggc acatgcctgt 4200 catcccagct acttgggagg ctgaggcagg agaatcgctt gaacccagga ggcagaggtt 4260 gcagtcagcc acggttgcgc cattgcactc cagactgggc aacaagagtg aaaactccat 4320 ctcaaaaaag aaaaaaaag aattagatat tttggatgag tgtgtctttg tgtgtttaac 4380 4440 tgagatggag aggagagcta agacatcaaa caaatattgt taagatgtaa aagcacatca 4500 gttaggtatc attagtttag gacaaggatt tctagaaaat ttttaggaac agaaaacttt ccagttctct cacccctgct caaagagtgt atggctctta cattatatat aactgcctga 4560 cttcatacag tatcagtact tagatcattt gaaatgtgtc cacgttttac caaaatataa 4620 tagggtgaga agctgagatg ctaattgcca ttgtgtattc tcaaatatgt caagctacgt 4680 4740 acatggcctg tttcatagag tagtctataa gaaattgatg acttgattca tccgaatggc 4800 tggctgtaac acctggttac gcatgaacac ctcttttcag ttgtctcaag acacctttct tttctgtact tatcagacaa ggactgaaag gcagagactg ctactgttag acattttgag 4860 4920 tcaaqctttt ccttqqacat aqctttqtca tqaaaqccct ttacttctqa qaaacttcta gcttcagaca catqccttca agatagttgt tgaagacacc agaagaagga gcatggcaat 4980

Bi



5040

gccgaaaaca cctaagataa taggtgacct tcagtgttgg cttcttgcag aatccagaga

gacagacttg	ctcagtggga	tggatggcaa	agggtcctac	caggtgaaag	gctggaaact	5100
tacacagcaa	cagtttgtgg	cccttttgtg	gaagagactg	ctaattgcca	gacggagtcg	5160
gaaaggattt	tttgctcagg	tgagacgtgc	tgttttcgcc	agagactctg	gcttcatggg	5220
tgggctgcag	gctctgtgac	cagtgaaggc	aggatagcat	cctggtcaag	atatggatgc	5280
cggagccaga	tttatctgta	tttcaatccc	agttctattc	cttgccagtt	gtgtatccgc	5340
tggcaagtta	cttctctatg	cctcaatctc	ctcatctgta	aaatggggat	aataatatta	5400
cctgcaatac	agggttgtta	cgaaaataaa	aatgaatagg	tgcttagaat	ggggcctgac	5460
attagtaagt	gcttagtttt	gtgtgtgtat	atgttattt	tattttggag	gagaacataa	5520
aaaggacaaa	gtgtagaaaa	actggttggg	tgtattcagc	tgtcataaca	tgagagttgt	5580
tatgcccaga	tgcacttgac	atgtgaattt	attagaaaca	tgatttttct	ctgagttgat	5640
gtttaactca	aactgataga	aaagataggt	cagaatatag	ttggccaaca	gagaagactt	5700
gttagactat	tgtctgcatg	tcagtgtttg	catgctaact	tgcttagtta	gaaaggttaa	5760
attttttcac	tctataaaat	caagaaatat	agagaaaagg	tctgcagaga	gtctttcatt	5820
tgatgatgtg	gatattgtta	agagcgggag	tttggagcat	acagagctca	agttgaatcc	5880
tgactttgct	acttattggc	tatatgacct	tgggcaagct	gcttagtctc	tctgatcctc	5940
agttaccttt	gtttgttgat	gatgaccatt	gataacacaa	ccataaataa	tgacaacata	6000
gagatagttc	tcattatagt	agttgttata	cagaattatt	cactcaatgt	taattttctg	6060
cattgaaatc	ccagaacatt	agaattgggg	gcattatttg	aatctttaag	gttataagga	6120
atacatttct	cagcaataaa	tggaaggagt	tttgggttaa	cttataaagt	atacccaagt	6180
cattttttt	cagagaagat	atggtagaaa	gtcttaggag	gttgaagaag	gaattggata	6240
tttattcttt	ctgagactat	catgggagat	aatgactatg	gttgtccatg	attggagccg	6300
	gttggtttta					6360
tcagaataaa	aagagaaaac	tgaggccagt	ggggagcgtg	acttcacatg	ggtacacttg	6420
tgctagagac	agaaccagga	ttcaggactt	ctggctcctg	gtcctgggtt	catggcccaa	6480
tgtagtcttt	ctcagtcttc	aggaggagga	agggcaggac	ccagtgttct	gagtcaccct	6540
gaatgtgagc	actatttact	tcgtgaactt	cttggcttag	tgcctctgcc	aggtggccat	6600
aacctctggc	cttgtgttgc	cagagaaaag	gtttagtttt	caggctccat	tgcttcccag	6660
ctgccaagaa	tgccttggtg	cagcacagtc	ataggccctg	cattcctcat	tgccgtgctg	6720
gttggtcggg	gaggtgggct	ggactcgtag	ggatttgccc	cttggccttg	tttctaacac	6780
ttgccgtttc	ctgctgtccc	cctgccccct	ccactgcctg	ggtaaagatt	gtcttgccag	6840
ctgtgtttgt	ctgcattgcc	cttgtgttca	gcctgatcgt	gccacccttt	ggcaagtacc	6900
ccagcctgga	acttcagccc	tggatgtaca	acgaacagta	cacatttgtc	aggtatgttt	6960
gtcttctaca	tcccaggagg	gggtaagatt	cgagcagacc	aaagatgttt	acgagggcca	7020
agggaatgga	cttcagaatt	acacggtgga	at			7052



<210> 23 <211> 2534 <212> DNA

<213> Homo sapiens

<400> 23

60 attggcctct ttttctctaa gcccacattt tcttcttaca tagttcaggt ttactttatt 120 ttttcctttc cggctgctga ccctgtattg cccgtagttg tggaacatag catgtgtttg 180 240 tgacctgtgc ctgttatttt tgtgctttct agttgtgcat gcaaagagta caaagttttc ttgccctttc ttggaaaatc ctgcttgtct gtgccaaagg gataattgtg aaagcacttt 300 360 tgaaatactt aatgagttga ttttcttcaa attaaaaaaa atatataaat gtatatgtgt 420 atgtacatgt gtgtacacat acacaccttt atacatacag cccatttaaa acaagctcca ctttggagtg ctctacgtca ccctgatgcc gaatacaggg ccagagtctg agatccttct 480 gggtggtttc tgtgttttgt tcatttctgt tttaagagcc tgtcacagag aaatgcttcc 540 600 taaaatqttt aatttataaa aacattttta tctctcqatt actqqtttta atqaattact aagctggctg cctctcatgt acccacagca atgatgctcc tgaggacacg ggaaccctgg 660





aactcttaaa	cgccctcacc	aaagaccctg	gcttcgggac	ccgctgtatg	gaaggaaacc	720
caatcccgtg	agtgccactt	tagccataag	cagggcttct	tgtgcttgtt	gcctggtttg	780
atttctaata	tgctgcattt	atcaactgca	tgccacattg	tgaccgccag	catttgccct	840
ttgaattatt	attatgtttt	atttacaaaa	agcgaaggta	gtaaccgaac	taaattatct	900
aggaacaaac	gtttggagag	tcttctaaca	ccgyscaaag	cacgtcatta	cagacatttg	960
tttactgatt	tagaacctta	atatttaatt	taaatacgca	ctttacactt	actgatgaaa	1020
tgcttttcct	ttctttctct	cccagcccct	gtacttaagt	gcttcaatag	gctctcatta	1080
tatatgattt	ttaggttttg	cttatcagct	tcttcgcttt	tataatctga	aaagatggca	1140
tatgaatttt	tataaaaagg	gacactttct	tcttctcaaa	ttgtatattt	ttattgtact	1200
				ataaattcag		1260
atatgaccct	taagtgagtg	taggggaagg	gaggtcacca	gatcactgtg	agtgaagatg	1320
gtggagaggt	gaggatctta	tgaggccgtg	ctcaaggctg	gtagaggtgg	gttagtgttt	1380
				agtgatctct		1440
ggcaaggtgg	gaaggtgctg	gagaattgga	gaggggcaa	acttgacttt	caagtttcaa	1500
tgggaagata	ggtgactctg	cacaccacag	aacagtgagc	atgataacct	gtttatacaa	1560
ggttctagag	cagatttcta	aatggatagc	tactgtgtgc	ttgtttgttc	ttaattagta	1620
ttggatagtt	actaaatact	tgttagtact	tagtacataa	tgggtggtaa	atcctagcag	1680
ctaatattgg	ttcccaaata	accagatgac	aaggatagag	aaggacacag	acacggccta	1740
tctggatttc	atggtgcctt	tgattttcca	catgaaggtt	gtgtagggaa	gatagaagca	1800
tgagatgaga	tgataatata	gttatctgga	ttcatcactg	gccagctgaa	ccatatgaac	1860
tcatggattg	atgctagctt	aggaaggctc	tgtaggagcc	agaactgggc	tgagagccag	1920
cccatagaga	caaaagaggc	ccggccctga	catcagaggg	ttcaaacatg	atgtctgagc	1980
cccacctaca	gtctgccgga	ggtggttgga	aggaagagcc	tttatcctta	caattcttac	2040
tgaaattcaa	atttttaggt	tttgcaaaaa	aatggtggac	ctgaaggaaa	tttgacagga	2100
				cttttgaatg		2160
aagcttcagg	agggcagcgc	gtcttagtgt	gacttttctg	gtcagttcag	gtgctttaag	2220
gagacaatta	gagatcaatc	tggaaaactt	catttgaatt	tttaatacat	aagaaaacaa	2280
taagaaatag	ttaaaaatat	atatttatat	aatatatata	tgtgtgtgtg	tgtgtgtgtg	2340
tgtgtgtgtg	tatatatata	tatattttat	ttatttattt	ttttttgaga	tggagtctcg	2400
ctctgttgcc	caggctggag	tgcagtggct	caatcttggc	tcactgccac	ctctgcctcc	2460
caggttcaag	tgattctcct	acctcagcct	cctgagtagc	tgggattaca	agcatgtgcc	2520
accacactgg	ctaa					2534

<210> 24 <211> 2841 <212> DNA <213> Homo sapiens

## <400> 24

60 tottgccagt ctctactcat ttttcagcac atcgagcata agatccagac tctttcccag 120 qcctctctca tctqqctcct ctcctcctcc tttatcatta ctcttcttcg tagcttatcc tactccagcc atgctgtctt cctattattc ctaaaaarta gaaatgcatt tcttcctagg 180 gcctttgtac ctgcacttgc catcgctttt gctcagaatg ttctttttgc caagcttttg 240 300 cccagcttgt tctccatcat tgttatgttt tggctgaaat gtcttctctt agtaggttca ttctccccag tcactgtctt tttattttgc tttattttgg gccatctaag gttatcttat 360 tagtgtattt gttgttcgtc tcctccatgg gcatacacct ccatgaaggc aggtattttc 420 accttaggcc ctcgaatata ctggacagca tctggcacgt agtagatgct caacgaatgt 480 540 ttgttgtgtg agcaaatggt tggttgattg gattgaactg agttcagtat gtaaatattt 600 agggcctctt tgcattctat tttacttatg tataaaatga tacataatga tgatataaat 660 gatgtcacag tgtacaaggc tgttgtggga tcaagcaatc aaatgagatc atgcttgtct 720 tttccaaatg gtgagggaat agatgcatgt ttgtggttgt tacggaatga tcctgtgctc ctgaggcaac agaaaggcca ggccatctct ggtaatccta ctcttgctgt cttccctttg 780 840 cagagacacg ccctgccagg caggggagga agagtggacc actgccccag ttccccagac 900 catcatggac ctcttccaga atgggaactg gacaatgcag aacccttcac ctgcatgcca



gtgtagcagc	gacaaaatca	agaagatgct	gcctgtgtgt	ccccagggg	caggggggct	960
gcctcctcca	caagtgagtc	actttcaggg	ggtgattggg	cagaaggggt	gcaggatggg	1020
ctggtagctt	ccgcttggaa	gcaggaatga	gtgagatatc	atgttgggag	ggtctgtttc	1080
agtcttttt	gttttttgtt	tttttttctg	aggcggagtc	ttgctctgtc	gcccaggctg	1140
gagtgctgtg	gcatgatctt	gcctcactgc	aacctccacc	tcccaggttc	aagcgattct	1200
cctgcctcag	cctcctgagt	agctgggatt	acaggcacgc	accaccatgt	ctggctaatt	1260
tttgtgtttt	tagtagagat	agggtttcgc	cgtgttggct	aggctggtct	ggaattcctg	1320
acctcaggtg	atccacccgc	ctcggcctcc	caaagtgctg	ggattacagg	cgtgagccac	1380
tacgcccagc	cctgtttcag	tctttaactc	gcttcttgtc	ataagaaaaa	gcatgtgagt	1440
tttgagggga	gaaggtttgg	accacactgt	gcccatgcct	gtcccacagc	agtaaagtca	1500
caggacagac	tgtggcaggc	ctggcttcca	atcttggctc	tgcaacaaat	gagctggtag	1560
				gggaggctgg		1620
tcctgtggat	cttgtcaact	ctggtattct	tagagactct	gtttgggaag	gagtcctgag	1680
ccatttttt	tttcttgaga	atttcaggaa	gaggagtgct	tatgatagct	ctctgctgct	1740
tttatcagca	accaaattgc	aggatgagga	caagcaattc	taaatgagta	caggaactaa	1800
aagaaggctt	ggttaccact	cttgaaaata	atagctagtc	caggtgcggg	gtggctcaca	1860
cctgtaatct	cagtattttg	ggatgccgag	gtggactgat	cacctaaggt	caggagttcg	1920
aaaccagctt	ggccaatgtg	gcgaaaccct	gtctctacta	aaaattcaaa	aattagccag	1980
gcatggtggc	acatgcctgt	aatcccagtt	acttgggagg	ctgaagcagg	agaattgctt	2040
gaacctggga	ggtggaggtc	gcagggagcc	aaaattgcgc	cactgtactc	cagcctgagc	2100
aacacagcaa	aactccatat	caaaaaataa	aatgaataaa	ataacagcta	atctagtcat	2160
cagtataact	ccagtgaaca	gaagatttat	taggcatagt	gaatgatggt	gcttcctaaa	2220
aatctcttga	ctacaaagaa	tctcatttca	atgtttattg	tttagatgtt	cagaataaat	2280
				tgccgagggc		2340
aagtctcagt	gctggttgac	tgagggcagt	gtctgggacc	tgtagtcagg	tttccggtca	2400
cactgtggac	atggtcactg	ttgtccttga	tttgttttct	gtttcaattc	ttgtctataa	2460
agacccgtat	gcttggtttt	catgtgatga	cagagaaaac	aaaacactgc	agatatcctt	2520
caggacctga	caggaagaaa	catttcggat	tatctggtga	agacgtatgt	gcagatcata	2580
				ttattactaa		2640
				gccagattat		2700
				gatgacgaga		2760
			agcctggtct	agaatgaaaa	tagaaatgga	2820
ttcaacgtca	aattttgcca	С				2841
212 25						
<210> 25						
<211> 852						
<212> DNA						4
<213> Homo	sapiens					
<400> 25						
	ataataataa	ccatgagttt	ctaadaaada	agcataattt	ctccatatgt	60
				taggccaggc		120
				atcacttgag		180
				taaaaataca		240
				gctgaggcag		300
				ccattgcatt		360
				aagaaaaagc		420
				acccaaggcc		480
				aggcctgaac		540
				ttatttctgt		600
				ataggctcag		660
				caagatctgg		720
				ggaggatggt		780
				acacacttgt		840
	. •		*	_	-	





	tcactgtgag	ga					852
	<210> 26						
	<211> 6289						
	<212> DNA						
	<213> Homo	sapiens					
	<400> 26						
	gctttataga	gtttctgcct	agagcatcat	ggctcagtgc	ccagcagccc	ctccagaggc	60
	_	_	gatttccttg				120
			gttgtgaggg				180
			ggactcaagg				240
			gaagcgccaa				300
	tttgtccttc	tgggttttga	aggaacaggt	gggactgggg	acagaagagt	tcttgaagcc	360
	agtttgtcca	tcatggaaaa	tgagataggt	gatgtggcta	cgtcaggggg	cccgaaggct	420
	ccttgttact	gatttccgtc	ttttctctct	gccttttccc	caagggccag	gacccctgga	480
	tctctgggca	gagcagacgc	aggcccctat	aatagccctc	atgctagaaa	ggagccggag	540
	cctgtgtata	aggccagcgc	agcctactct	ggacagtgca	gggttcccac	tctcccaact	600
	ccccatctgc	ttgcctccag	acccacattc	acacacgagc	cactgggttg	gaggagcatc	660
	tgtgagatga	aacaccattc	tttcctcaat	gtctcagcta	tctaactgtg	tgtgtaatca	720
	ggccaggtcc	tccctgctgg	gcagaaacca	tgggagttaa	gagattgcca	acatttatta	780
	gaggaagctg	acgtgtaact	tctgaggcaa	aatttagccc	tcctttgaac	aggaatttga	840
			ctcgcactga				900
			gctgttcttt				960
	taatactcaa	gcacttcctc	cgagtcaaga	agttaatgat	gccatcaaac	aaatgaagaa	1020
	acacctaaag	ctggccaagg	taaaatatct	atcgtaagat	gtatcagaaa	aatgggcatg	1080
	tagctgctgg	gatataggag	tagttggcag	gttaaacgga	tcacctggca	gctcattgtt	1140
	ctgaatatgt	tggcatacag	agccgtcttt	ggcatttagc	gatttgagcc	agacaaaact	1200
	gaattactta	gttgtacgtt	taaaagtgta	ggtcaaaaac	aaatccagag	gccaggagct	1260
	gtggctcatg	cctgtaatcc	tagcactttg	ggaggctgaa	gcgggtggat	cacttgaggt	1320
	caggagttcg	agaccagcct	ggcctacatg	acaaaacccc	gtatctacta	aaaatacaaa	1380
	aaaattagct	gggcttggtg	gcacacacct	gtaatcccag	ctacttggga	ggctgaggca	1440
			taggaagagg				1500
	tccagcctgg	gcaacaagag	caaaactcca	tctcaaaaaa	caaattaaat	ccagagattt	1560
	aaaagctctc	agaggctggg	cgcggtggct	tacacctgtt	atcccagcat	tttgggatgc	1620
			gtcaggagtt				1680
	ctgtctctgc	taaaaacata	gaaaaattag	ccgggcatgg	tggcgtgcgc	ctgtaatccc	1740
•	agctactcgg	gaggctgagg	tgagagaatt	rcttgaaccc	gggaggcgga	ggttgcagtg	1800
			actccagcct				1860
			tttacaaatt				1920
			cactgactaa				1980
			taggacctga				2040
			gaattaaggg				2100
			gtccacaagt				2160
			tggttctggc				2220
			ataaccagac				2280
			gacttgtggc				2340
			ccgtttattt				2400
			cagggccgtc				2460
			gtcacaactg				2520
			agcttgggaa				2580
			ctttgttcta				2640
			tcatggtaaa				2700
	caaactatta	actttaccag	tgaggcagta	cggtgtagtg	tagtgattca	gagaatttgc	2760





tttgccacca gacataccag gtaaccttga ctaagttact taacctatct aaacctcagt 2820 tycctcatct gtgaaatgga gacagtaatc atagctattt ccaaactgtt gtgagaattc 2880 2940 aatgagttaa aggtataagg tootcaccac agcgcotgco cacatagtca gtgatcacta 3000 tgtcctgaac actgtaatta cttcgccata ttctctgatc atagtgtttt gccttggtat 3060 gtgactagaa tttctttctg aggtttatgg gcatggttgg tgggtatgca cctgcctgca 3120 ggagcccggt ttgggggcat taccttgtac ctggtatgtt ttctttcagg tgtggttcaa 3180 taacaagggc tggcatgcaa tcagctcttt cctgaatgtc atcaacaatg ccattctccg ggccaacctg caaaagggag agaaccctag ccattatgga attactgctt tcaatcatcc 3240 3300 cctgaatctc accaagcagc agctctcaga ggtggctctg taagtgtggc tgtgtctgta 3360 tagatggagt ggggcaaggg agagggttat ggagaagggg agaaaaatgt gaatctcatt gtaggggaac agctgcagag accgttatat tatgataaat ctggattgat ccaggctctg 3420 ggcagaagtg ataagtttac gaattggctg gttgggcttc ttgaactgca gaagagaaaa 3480 tgacactgat atgtaaaaat cgtaacattt agtgaattca tataaagtga gttcaaaaat 3540 tgttaattaa attataattt aattataagt gtttaatcag tttgatttgt ttaaaaacca 3600 ctgttttaaa tttggtggaa tatgttttta ttagcttgta tctttaattc ctaaattaag 3660 3720 3780 gccaggatga gctagtttaa agtatgcagc ctttggagtc atacagatct gggtttgaat ctggtctcta aactttatag atgtatgata ttaaatgagg cagttcatgt aaattgccaa 3840 3900 gcccagcact cagcacagag ttgatatttc acacacatta gatacctttc ctgtatgtgg 3960 agcatggcag ttcctgtttc tgctttactc ctacaggata ctaatatagg acactaggat 4020 ctttatacca agaccccatg taatgggctt atgagaccat tcttcttata aaaatctgac agaatttttg tatgtgttag atcaataggc tgcatactgt tattttcaag ttgatttaca 4080 gccagaaata ttaatttatt tgagtagtta cagagtaata tttctgctct catttagttt 4140 4200 tcaagcccca ctagtccttt gtgtgtgaaa atttacaact tactgctctt acaaggtcat gaacagtgga ccaaagtgaa tgccattaac cactctgact tccttcatta gttttattgt 4260 gacagtggac tcttttgacc tcagtaatac cagtttggca tttacattgt catattttta 4320 4380 gacttaaaaa tgatcatctt aaccctgaat aaaatgtgtc tggtgaacag atgtttttcc ttggctgtgc ctcagatatc tctgtgtgtg tgtacgtgtg tgtttgtctg tgtgtccatg 4440 4500 tcctcactga ttgagcccta actgcatcaa agacccctca gattttcaca cgctttttct ctccaggatg accacatcag tggatgtcct tgtgtccatc tgtgtcatct ttgcaatgtc 4560 4620 cttcgtccca gccagctttg tcgtattcct gatccaggag cgggtcagca aagcaaaaca cctgcagttc atcagtggag tgaagcctgt catctactgg ctctctaatt ttgtctggga 4680 4740 tatggtaagg acacaggeet getgtatett tetgatgtet gteagggeea tggattgata 4800 tggataagaa agaaagagct ctggctatca tcaggaaatg ttccagctac tctaaagatg 4860 tatgaaaaag aaatagccag aggcaggtga tcactttcat gacaccaaac acagcattgg 4920 qtaccagagt tcatgtcaca ccagagggaa aattctgtac acaatgatga aaattaatac 4980 cactaccact taagttccta tgtgacaact ttcccaagaa tcagagagat acaagtcaaa 5040 actccaagtc aatgcctcta acttctctga tgggttttaa cctccagagt cagaatgttc 5100 tttgccttac taggaaagcc atctgtcatt tagaaaactc tgtacatttt atcagcagct 5160 tatccatcca ttgcaaatat tgtttttgtg ccasccacaa tatattgctt ctatttggac caatatgggg gatttgaagg aattctgaag ttctaattat atttcaactc tactttacaa 5220 5280 tatctccctg aaatatatct ccctgtaact tctattaatt ataagctaca cagagcaaat 5340 ctaattette teccacegaa caagteeetg gatatttaaa aataaetete ataeteteat ttaacctgag tattacccag ataagatgat atatgagaat acaccttgta acctccgaag 5400 cactgtacaa atgtgagcaa tgatggtgga gatgatgatg agatctttgc tgtttatacc 5460 aagcccctta gactgtgtca ctcttctgat ccggttgtcc ttgtatggcc atgctgtata 5520 5580 ttgtgaatgt cccgttttca aaagcaaagc caagaattaa ccttgtgttc aggctgtggt ctgaatggtt atgggtccag agggagttga tctttagctc acacttctat tactgcagca 5640 caaagatttt gcattttgga aggagcaccg tcttactggc aacttagtgg taaaccaaaa 5700 5760 cctccatttc acacaaatga ttgtgaaatt cgggtctcct tcattctata caaattcatt tgattttttt gaaactaaac tttatattta tccatattaa attacatggg ttttattttt 5820 gttttatctt gattcagtaa ttactccttt cagtaaacac agactgagtg ctgtgtgtct 5880 5940 gacttatgcc aggcataggt gattcagaga tgaaaggtca agtccctgaa cccatctctt gtcttcctgg gtattatctg tccctccctg ctttagagct cctgaaattt gctagaagca 6000

D



tgtcttcatc	taagttgttg	ataaacacat	caagtaggat	tggactgagg	cagageeetg	6060
	ctgcagttct					6120
gctttgctct	gccagctgtg	aattctcata	attgtcctat	cgtcaagtct	ttatttctgc	6180
attttactgc	ttgatacact	gtcaggacag	actttaaaat	tattctcagt	gcgatgaaac	6240
aattctgaca	ttcatgttat	gagcagttac	ctcataaata	gattacatg		6289
<210> 27						
<211> 4244						
<212> DNA						
<213> Homo	sapiens					
<400> 27						
	gactgggaat	ccatcattca	gtaagtttag	taaatataac	accttggctt	60
	aagacagaaa					120
	attgtcgggt					180
	tatgtttatc					240
	ttgatttagg					300
	gccacactgg					360
	aatctgcctg					420
-	agctgcacag					480
	tagacactta					540
	tcctttgtgt					600
	attggcatta					660
	catgcagaga					720
	attgtgatct					780
	cagagtctgt					840
	gctggtcaag					900
	tgctcttacc					960
gggcgacgca	ttcagtccta	aggcttttac	catcacctct	cttggtgttt	ttattgtcat	1020
ctctaagatc	aatgccttta	gccttgatca	taaccttgaa	ctctaatctc	aaattctcac	1080
	gattgctcca					1140
	cccttggaac					1200
	tcggttgccc					1260
	cccacattca					1320
	cctctccatt					1380
	tgcacaactc					1440
	ttgcctccaa					1500
	gtctggtagt					1560 1620
	gctgggaggt					1620
	caacgtacat					1740
	gtctgtttct					1800
	cccttattca tatttgagaa					1860
	atgagcaatt					1920
_	agcctgtttc	_		_	-	1980
	taaagaatag					2040
	tctgaattaa					2100
	tcagaacttg					2160
	ctcccttccc					2220
	tcctgaagtc					2280
	tggtgaaaaa					2340
	gtaggatgct					2400
			<del>-</del>	_	· -	



actttgtttt	ggaaagaagc	aggtgactaa	gcacaggatg	ttcccccacc	cccatgccca	2460
gtgacagggc	tcatgccaac	acagctggtt	gtggcatggg	ttttgtgaca	caaccatttg	2520
tctgtgtctc	tgatagcatt	gagaaaagtg	aaagggcagt	tttgaaggta	aggaaaatag	2580
tgttatttgc	ttggatccac	tggctcatgc	cactgtctgg	gttggttaga	agcactggaa	2640
aagtcaaacc	ataactttga	gaattaggtg	atcagggaat	cagaaggaaa	gatgcaaact	2700
ttggctcttt	taggcgaatc	atgtgcctgc	agatgaggtc	atttattatc	ttttacacag	2760
tctataaaat	tataatgtat	tacatctttt	tctaccttta	gaatggttaa	aaatatttct	2820
ccggtagcca	tatgattatt	attcatccat	tagataatat	agtcaaatgg	gccatgttat	2880
ttactgttca	tagaagaggg	gctttttgca	acttgggcta	caaaggagat	atgtaaggaa	2940
tttaaggaat	ggttacatgg	aactagattt	aattgaatct	agtggtttaa	ttgattcact	3000
aggatatatg	ctactgaaag	gggaatctgc	ttaaagtgct	ttctgatatt	tattattact	3060
aaaacttaga	atttattaaa	aatactgact	gtgaaaatta	cttgggtcgt	ttgccttttt	3120
aaaaggattt	ttggcatgtc	tcattaaaaa	aagaaatact	agatatcttc	agtgaagtta	3180
caaatcgaat	acacattggc	tctgaaattc	tgattgatac	tgggtcataa	aaagttttcc	3240
caaatcagac	ttggaaagtg	atcactctct	tgttactctt	ttttccttgt	catgggtgat	3300
agccatttgt	gtttattgga	agatcggtga	attttaagga	acataggccc	aaatttgagg	3360
aagggccatg	gtttttgatc	cctccattct	gaccggatct	ctgcattgtg	tctactaggg	3420
				gacgaaacct		3480
				tccagtacag		3540
aggcccaggt	gagctttttc	ttagaacccg	tggagcacct	ggttgagggt	cacagaggag	3600
gcgcacaggg	aaacactcac	caatgggggt	tgcattgaac	tgaactcaaa	atatgtgata	3660
aaactgattt	tcctgatgtg	ggcatcccgc	agccccctcc	ctgcccatcc	tggagactgt	3720
				ttgtcctgaa		3780
				atgcaaagct		3840
aatgatgaag	atgaagatgt	gaggcgggaa	agacagagaa	ttcttgatgg	tggaggccag	3900
-				agtacaggtt		3960
				gtttgctgac		4020
				tctgtcaatt		4080
				cttttgtgat		4140
				ttagttatta	aaacatacta	4200
atattgtata	tctagtcaaa	ctgagtagag	agataatggt	gatt		4244



<211> 5023 <212> DNA

<213> Homo sapiens

## <400> 28

<210> 28

ttttaaaata cctgcaatac atatatatgt tgaatagatg aaaaattatg tagatgataa 60 120 tgaatgatac ggttctaaaa agacaggtta aaaagtaagt tcacttttat tttgagcttc aqaatcatto aqaaqocaqt cqccacaaac qcaqaccaaq qctcttgqca catcaaatat 180 gcctatggct tagggttatt gacaagtctt atgttgcagt gtatgtggtt tatagtcctg 240 ccttccacag ttgcttggga gagctgtgag tcactgaggc ttatgaatgt ttacattttg 300 tttgttgcag atatatagaa ggaagcggaa gcctgctgtt gacaggattt gcgtgggcat 360 420 teeteetggt gaggtaaaga eaetttgtet atattgegtt tgteeetatt agtteagaet 480 atttctaccc aatcaagcaa cgatgctcgt taagaggtaa aagtggattt taaaggcttc 540 tgtatttatg ccaggatgga gcaattagtc atcgagaaga gagggaccct gtatgtcaag 600 agaatgattt cagagaatcc aatacaattt aagaaaaagc atggggctgg gcgcagtgat 660 tcactcctgt aatcccagca ctttgggagg ccgaggtggg cggactcacg aggtcaggag attgagacca tcctggccaa catggtgaaa ccccatctct actataaata caaaaattag 720 780 ctgggcatag tagtgcattc ctgtagtccc agctactcgg gaggctgagg caggagaatt 840 gcttgaacct aggagggga ggttgcccag attgcgctgc tgcactccag cctggtgaca gagtgagact catgtcaaca acaaaaacag aaaaagcacg cacatctaaa acatgctttt 900 gtgatccatt tgggatggtg atgacattca aatagttttt taaaaataga ttttctcctt 960

-37-

tctggtttcc gtttgtgttc ttttatgccc ttttgccaga gtaggtggtg caatttggct 1020 agctggcttt cattactgtt tttcacacat taactttggc ctcaacttga caactcaaat 1080 aatatttata aatacagcca cacttaaaat ggtcccatta tgaaatacat atttaaatat 1140 ctatacgatg tgttaaaacc aagaaaatat ttgattcttc tctgatattt aagaattgaa 1200 ggtttgaggt agttacgtgt taggggcatt tatattcatg tttttagagt ttgcttatac 1260 aacttaatct ttccttttca gtgctttggg ctcctgggag ttaatggggc tggaaaatca 1320 tcaactttca agatgttaac aggagatacc actgttacca gaggagatgc tttccttaac 1380 aaaaataggt gagaaaagaa gtggcttgta ttttgctgca aagactttgt ttttaattta 1440 tttaaagaaa taggttgtta tttttgatta cagtggtatt tttagagttc ataaaaatgt 1500 tgaaatatag taaagggtaa agaagcacat aaaatcatcc atgatttcaa tatctagaga 1560 taatcacaat ttacatttcc tttcagtctc attctcttct tttaacagct ttattcaggt 1620 ataatttaca tacaatataa tttgcttgtt ttttaagagt ataatttagt gatttttggt 1680 aaattgagag ttttgcaacc atcaccacaa tccagtttta gaacttttcc atcaccccac 1740 atctgtctta tatacacata taaatgtgcc atacaattga gatcatactg tatgtagaat 1800 ttaaaattag tttttattgt taatgagtgt attatgaata tttcccagtg ggttacattt 1860 cctaagatgt ggaattttac attgctacat aaaatccccc tatgtacatg tacctataat 1920 ttatttaata aatteettat aaatgttgga cacattagtt teeattttte aetatgtaaa 1980 tatgtccctg tatacatctt ttattatttc ctcaggaaca attcctacaa agtaaattgc 2040 cctctctaaa gagcatacaa attgactgag ccaccgttag gccattttct gagactgcac 2100 aggtcacaaa gcaatctgat ctttgggaat acagctacat tttataggct tcttagataa 2160 2220 tgttactcta agtactttaa atatgtgggg cttctctggg cttttttttt tttgagacgg 2280 agtttcactc ttactgccca ggctggagag caatggcgcg accttggctc actgcaacct ccgcctccca ggttcaagcg attctcctgc ctcagcctcc tgagtagctg agattacagg 2340 2400 tgcccgccac aatgcctgcc taattttttt gtattttcag tagagatggg gtttcaccat gttggccaga ctggtctcga gctcctgacc tcaggtgatc cacctgcctc agcctcccaa 2460 agttctggga ttacaggcat gagccactgc gcccggcttc tctggactta ttatgtggag 2520 agatagtaca aggcagtggc tttcagagtt ttttgaccat gaccgttgtg ggaaatacat 2580 tttatatctc aacctagtat gtacacacag acatgtagac acatgtataa cctaaagttt 2640 2700 cataaagcag tacctactgt tactaattgt agtgcactct gctatttctt attctacctt atactgcgtc attaaaaaag tgctggtcat gacccactaa atttatttcc caaaccacta 2760 atgaacaatg actcacaatt tgaacacact ggacaggggg atagccaata aaattgaaaa 2820 gagcaaggaa attaatgtat tcatgatctc ctctcctgtc tcttacattt ttgcagtagc 2880 aatgtaaagg aatcctaaga gaacagacat tctgggaata gcaggcctag cgctgcacaa 2940 ctgctttcct aggcttgctc ctagtaccaa gctcctgacg catatagcag tggcagtaat 3000 aaccagccca tagtaaggtt tgtcacaggg actggttgta agaactgatt tgrttggtat 3060 3120 agetgtgagg geetggeaeg gtgteeaegt gtgeeteaat eetaattetg aaaaaggetg 3180 accctggggg tgctaattag atacacagag aggaatgaat gctgccagaa ggccaagttc atggcaatgc cgctgtggct gaggtgcagt catcagtctg gaacgtgaac actgaacttc 3240 3300 teteacatgt gattetteae ttgaetgget teatagaace ecaaageeae eccaecaeca cataaattgt gtctctaggt tctgtgttgc tcacactcaa aatttctggg ccttctcatt 3360 tgqtqcatqt qaatqqtqca tatqaqtqaa qtctaqqatq qqqccttaqc qttaaaqccc 3420 tggggtagtg tgactgagat tgttggtaaa gaatgtgcag tggttggcat gacctcagaa 3480 3540 attotgaaat gggactgcac otgcagactg aagtgttcag agagccaggg aggtgcaagg actggggagg gtagaggcag gaaccetgee tgecaggaag agetageate etgggggcag 3600 aaaggctgtg ctttcaagta gcagcagatg tattggtatc tttgtaatgg agaagcatac 3660 3720 tttacaggaa cattaggcca gattgtctaa ccagagtatc tctacctgct taaaatctaa gtagttttct tgtcctttgc agtatcttat caaacatcca tgaagtacat cagaacatgg 3780 gctactgccc tcagtttgat gccatcacag agctgttgac tgggagagaa cacgtggagt 3840 tctttgccct tttgagagga gtcccagaga aagaagttgg caaggtactg tgggcacctg 3900 aaagccagcc tgtctccttt ggcatcctga caatatatac cttatggctt ttccacacgc 3960 attgacttca ggctgttttt cctcatgaat gcagcagcac aaaatgctgg ttctttgtat 4020 ctgctttcag ggtggaaacc tgtaacggtg gtggggcagg gctgggtggg cagagaggga 4080 gtgctgctcc caccacacga gtcccttctc cctgctttgg ctcctcacca gttgtcaggt 4140 tatgattata gaatctagtc ctactcagtg aaagaacttt catacatgta tgtgtaggac 4200

13:



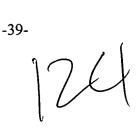
```
agcatgataa aattcccaag ccagaccaaa gtcaaggtgc tttttatcac tgtaggttgg
                                                                     4260
tgagtgggcg attcggaaac tgggcctcgt gaagtatgga gaaaaatatg ctggtaacta
                                                                     4320
tagtggaggc aacaaacgca agctctctac agccatggct ttgatcggcg ggcctcctgt
                                                                     4380
ggtgtttctg gtgagtataa ctgtggatgg aaaactgttg ttctggcctg agtggaaaac
                                                                     4440
                                                                     4500
atgactgttc aaaagtccta tatgtccagg gctgttgtat gattggcttg tcttccccca
gggacagcag agcaaccttg gaaaagcaga gggaagcttc tcccttggca cacactgggg
                                                                     4560
                                                                     4620
tggctgtacc atgcctgcag atgctcccaa atagaggcac tccaagcact ttgtttctta
qcqtqattga ggctggatat gtgatttgat ctttctctgg aacattcttt ctaatcatct
                                                                     4680
ttgtgttcat tccctgaaaa tgaagagtgt ggacacagct ttaaaatccc caaggtagca
                                                                     4740
actaggtcat agttccttac acacggatag atgaaaaaca gatcagactg ggaagtggcc
                                                                     4800
cttgaccttt tttcttctgt agataagagc attgatgtta ttacgggaag aagcctttga
                                                                     4860
ggcttttatg tattccacct cggtctggaa tttgtttctg taaggctaac agttgcaata
                                                                     4920
tactagggta atctgagtga gctggaatta aaaaaaaaa ggaatttcac cccaatctta
                                                                     4980
                                                                     5023
tactgacttc aatagaggtt tcagacaaaa agttgttttg tat
<210> 29
<211> 5138
```

```
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1)...(5138)
<223> n = a, t, c, or g
```

## <400> 29

60 ngccnngttn aaaangaaaa tttnnnnnaa attnaanntt annggngnnn tttccccaga aaaaacnaaa angattteen eeengggggg neeeeenant enaaaaggee eenettnttt 120 gnggngaggg aaagnttttt ttggaatttt taatttttgg tcccccaaaa cctattattg 180 240 agaatttaat tacataaaaa agtactcaga atatttgagt ttcctgcatc aataagacat ttataataat gaccttgttt acaaatgaat ttgaaagtta ctctaattct ttgattcatc 300 aagaaataac tagaatggca agttaaaatt taagctgttt caaagatgct tctgcattta 360 aaaacaaatt tatctttgat tttttttccc cccagcaaat aagacttatt ttattctaat 420 tacaggatga acccaccaca ggcatggatc ccaaagcccg gcggttcttg tggaattgtg 480 ccctaagtgt tgtcaaggag gggagatcag tagtgcttac atctcatagg tccgtagtaa 540 600 agtottgggt tootcactgt gggatgtttt aactttocaa gtagaatatg cgatcatttt 660 gtaaaaatta gaaaatacag aaaagcaaag agtaaaacaa ttattacctg aaattatata 720 tgcatattct tacaaaaatg caagcccagt ataaatactg ctctttttca cttaatatat tqtaaacatt attccaaqtc aqtqcattta qqtqtcattt cttatagctq qatagtattc 780 cattaggata tactcttatt taactattcc cccttttgta gacatttgga ttatttccaa 840 cttgttcaca attgtaaaca ccactacact gaacagcatc atccctatat ccacatgtac 900 960 ttgtaacaga atacaattcc ctaggaagct ggaatgctgg aagtcatggt gatgttctca 1020 tggttacaga gaatctctct aaaactaaaa cctctttctg ttttaccgca gtatggaaga 1080 atgtgaagct ctttgcacta ggatggcaat catggtcaat ggaaggttca ggtgccttgg cagtgtccag catctaaaaa ataggtaata aagataattt ctttgggata gtgcctagtg 1140 agaaggettg atatttatte ttttgtgagt atataaatgg tgeetetaaa ataaagggaa 1200 1260 ataaaactga gcaaaacagt atagtggaaa gaatgagggc tttgaagtcc gaactgcatt caaattetgt etttaceatt tactggttet gtgaetettg ggeaagttae ttaactaetg 1320 taagagttag tttccctgga agatctacct cctagctttg tgctatagat gaaatgaaaa 1380 1440 aaatttacat gtgccagtac tggtgagagc gcaagctttg gagtcaaaca caaatgggtt tgcatcctgg ccctaccaat tatgagctct gagccatggg caagtgacta actccctggg 1500 cctcagtttc tctgtaacat ctgtcagact tcatgggtcc aggtgaggat taaaggagat 1560



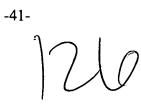


1620 catgtattta cagcacatgg catggtgctt cacataaaat aagtatttag taaatgataa ctqqttcctt ctctcaqaaa cttatttctg ggcctgccag gggccgccct ttttcatggc 1680 1740 acaagttggg ttcccagggt tcagtattct tttaaatagt tttctggaga tcctccattt gggtattttt tcctgctttc aggtttggag atggttatac aatagttgta cgaatagcag 1800 ggtccaaccc ggacctgaag cctgtccagg atttctttgg acttgcattt cctggaagtg 1860 1920 ttcyaaaaga gaaacaccgg aacatgctac aataccagct tccatcttca ttatcttctc 1980 tggccaggat attcagcatc ctctcccaga gcaaaaagcg actccacata gaagactact 2040 ctqtttctca qacaacactt qaccaagtaa gctttgagtg tcaaaacaga tttacttctc agggtgtgga ttcctgcccc gacactcccg cccataggtc caagagcagt ttgtatcttg 2100 2160 aattggtgct tgaattcctg atctactatt cctagctatg ctttttacta aacctctctg aacctgaaaa gggagatgat gcctatgtac tctataggat tattgtgaga atttactgta 2220 ataataacca taaaaactac catttagtga gcacctacca tgggccaggc attttacttg 2280 qtqcctaatc ctatttaaat tagataaaaa agtaccaaat aggtcctgac acttaagaag 2340 tactcagtaa atattttctt ccctcttccc tttaatcaag accgtatgtg ccaaagtaaa 2400 2460 tggatgactg agcagttggt gatgtagggg tgggggggga tatagaaagt cagtttttgg ccgggcgtgg tggctcatgc ctgtaatccc agcactttgg gaggctgagg agcaggcaga 2520 2580 tcatgaggtc aggagatcca gataatcctg gccaacaggg tgaaaccccg tctctactaa 2640 aaatacaaaa attagctggg catggtggtg cgcacttgta gtcccagcta cttgcgaggc 2700 tgaggcagga gaattgctcg aacccaggag gtggaggtta cagtgagcca aggtctcgcc 2760 actgcactcc agcctgggga cagagcaaga ccccatttca aggggggaaa aaaagtctat 2820 ttttaagttg ttattgcttt tttcaagtat tcttccctcc ttcacacaca gttttctagt taatccattt atgtaattct gtatgctcct acttgaccta atttcaacat ctggaaaaat 2880 agaactagaa taaagaatga gcaagttgag tggtatttat aaaggtccat cttaatcttt 2940 3000 taacaggtat ttgtgaactt tgccaaggac caaagtgatg atgaccactt aaaagacctc tcattacaca aaaaccagac agtagtggac gttgcagttc tcacatcttt tctacaggat 3060 3120 gagaaagtga aagaaagcta tgtatgaaga atcctgttca tacggggtgg ctgaaagtaa agaggaacta gactttcctt tgcaccatgt gaagtgttgt ggagaaaaga gccagaagtt 3180 gatgtgggaa gaagtaaact ggatactgta ctgatactat tcaatgcaat gcaattcaat 3240 gcaatgaaaa caaaattcca ttacaggggc agtgcctttg tagcctatgt cttgtatggc 3300 3360 tctcaaqtqa aaqacttqaa tttaqttttt tacctatacc tatqtqaaac tctattatgg 3420 aacccaatgg acatatgggt ttgaactcac actttttttt ttttttttgt tcctgtgtat 3480 tctcattggg gttgcaacaa taattcatca agtaatcatg gccagcgatt attgatcaaa 3540 atcaaaaggt aatgcacatc ctcattcact aagccatgcc atgcccagga gactggtttc 3600 ccggtgacac atccattgct ggcaatgagt gtgccagagt tattagtgcc aagtttttca gaaagtttga agcaccatgg tgtgtcatgc tcacttttgt gaaagctgct ctgctcagag 3660 tctatcaaca ttgaatatca gttgacagaa tggtgccatg cgtggctaac atcctgcttt 3720 gattccctct gataagctgt tctggtggca gtaacatgca acaaaaatgt gggtgtctcc 3780 3840 aggcacggga aacttggttc cattgttata ttgtcctatg cttcgagcca tgggtctaca gggtcatcct tatgagactc ttaaatatac ttagatcctg gtaagaggca aagaatcaac 3900 agccaaactg ctggggctgc aactgctgaa gccagggcat gggattaaag agattgtgcg 3960 4020 ttcaaaccta gggaagcctg tgcccatttg tcctgactgt ctgctaacat ggtacactgc atctcaagat gtttatctga cacaagtgta ttatttctgg ctttttgaat taatctagaa 4080 aatgaaaaga tggagttgta ttttgacaaa aatgtttgta ctttttaatg ttatttggaa 4140 4200 ttttaagttc tatcagtgac ttctgaatcc ttagaatggc ctctttgtag aaccctgtgg 4260 tatagaggag tatggccact gcccactatt tttattttct tatgtaagtt tgcatatcag tcatgactag tgcctagaaa gcaatgtgat ggtcaggatc tcatgacatt atatttgagt 4320 ttctttcaga tcatttagga tactcttaat ctcacttcat caatcaaata ttttttgagt 4380 gtatgctgta gctgaaagag tatgtacgta cgtataagac tagagagata ttaagtctca 4440 gtacacttcc tgtgccatgt tattcagctc actggtttac aaatataggt tgtcttgtgg 4500 ttgtaggagc ccactgtaac aatactgggc agcetttttt tttttttt taattgcaac 4560 aatgcaaaag ccaagaaagt ttaagggtca caagtctaaa caatgaattc ttcaacaggg 4620 4680 aaaacaqcta qcttqaaaac ttqctqaaaa acacaacttg tgtttatggc atttagtacc 4740 ttcaaataat tqqctttqca qatattqqat accccattaa atctgacagt ctcaaatttt 4800 tcatctcttc aatcactagt caagaaaaaa tataaaaaaca acaaatactt ccatatggag

Bu



actgtttcac attgtttggg agaatttgaa ttttttaaat	agttttctaa taatacttac gaagttcaag tattaacgct ttacagaata aggtcaatat	tgttaactgt tgatctttca aaaggtgtaa ttatataacc	cttgagagaa atatcattac gacttcagat cactgctgaa	aagaaaaata taacttcttc ttcaaattaa	tgagagaact cactttttcc tctttctata	4860 4920 4980 5040 5100 5138
<210> 30 <211> 20 <212> DNA <213> Homo	sapiens					
<400> 30 gtgttcctgc	agagggcatg					20
<210> 31 <211> 20 <212> DNA <213> Homo	sapiens	,				
<400> 31 cacttccagt	aacagctgac					20
<210> 32 <211> 21 <212> DNA <213> Homo	sapiens					
<400> 32	gtccttcatg	С				21
<210> 33 <211> 21 <212> DNA <213> Homo	sapiens					
<400> 33	ctcagcatct	t				21
<210> 34 <211> 19 <212> DNA <213> Homo	sapiens			·		
<400> 34 caacaagcca	_					19
<210> 35 <211> 18 <212> DNA <213> Homo	saniens					
	<u></u>					



<400> 35 catgttccct cagccagc	18
<210> 36 <211> 19 <212> DNA <213> Homo sapiens	
<400> 36 cagageteae ageagggae	19
<210> 37 <211> 21 <212> PRT <213> Homo sapiens	
<pre>&lt;400&gt; 37 Cys Ser Val Arg Leu Ser Tyr Pro Pro Tyr Glu Gln His Glu Cys His 1</pre>	
<210> 38 <211> 14 <212> DNA <213> Homo sapiens	
<400> 38 gcctgtgtgt cccc	14
<210> 39 <211> 14 <212> DNA <213> Homo sapiens	
<220> <221> misc_feature <222> (1)(14) <223> n = t or c	
<400> 39 gcctgtgngt cccc	14
<210> 40 <211> 45 <212> DNA <213> Homo sapiens	
<400> 40 aagaagatgc tgcctgtgtg tcccccaggg gcaggggggc tgcct	45
<210> 41 <211> 15	

2-

```
<212> PRT
<213> Homo sapiens
<400> 41
Lys Lys Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu Pro
1
                 5
<210> 42
<211> 15
<212> PRT
<213> Mus musculus
<400> 42
Lys Lys Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu Pro
                                     10
<210> 43
<211> 15
<212> PRT
<213> Homo sapiens
<400> 43
Lys Lys Met Leu Pro Val Arg Pro Pro Gly Ala Gly Gly Leu Pro
1
<210> 44
<211> 5
<212> PRT
<213> Caenorhabditis elegans
<400> 44
Leu Leu Gly Gly Ser
<210> 45
<211> 45
<212> DNA
<213> Homo sapiens
aagaagatgc tgcctgtgcg tcccccaggg gcagggggc tgcct
                                                                         45
<210> 46
<211> 14
<212> DNA
<213> Homo sapiens
<400> 46
```

14

gcctacttgc agga

```
<210> 47
<211> 14
<212> DNA
<213> Homo sapiens
<400> 47
gcctacttgc ggga
                                                                          14
<210> 48
<211> 45
<212> DNA
<213> Homo sapiens
<400> 48
tgggggggct tcgcctactt gcaggatgtg gtggagcagg caatc
                                                                          45
<210> 49
<211> 15
<212> PRT
<213> Homo sapiens
<400> 49
Trp Gly Gly Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile
<210> 50
<211> 15
<212> PRT
<213> Mus musculus
<400> 50
Trp Gly Gly Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile
<210> 51
<211> 15
<212> PRT
<213> Homo sapiens
<400> 51
Trp Gly Gly Phe Ala Tyr Leu Arg Asp Val Val Glu Gln Ala Ile
                                     10
<210> 52
<211> 12
<212> PRT
<213> Caenorhabditis elegans
<400> 52
Phe Met Thr Val Gln Arg Ala Val Asp Val Ala Ile
```

```
<210> 53
<211> 45
<212> DNA
<213> Homo sapiens
<400> 53
tgggggggct tcgcctactt gcgggatgtg gtggagcagg caatc
                                                                          45
<210> 54
<211> 25
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1) ... (25)
<223> n is a, t, c, or g.
<400> 54
tcattcctct tgtnngcncn gnncn
                                                                          25
<210> 55
<211> 45
<212> DNA
<213> Homo sapiens
<400> 55
                                                                          45
agtagectea tteetettet tgtgageget ggeetgetag tggte
<210> 56
<211> 15
<212> PRT
<213> Homo sapiens
<400> 56
Ser Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu Val Val
 1
                                     10
<210> 57
<211> 15
<212> PRT
<213> Mus musculus
<400> 57
Ser Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu Val Val
                 5
                                     10
<210> 58
<211> 14
<212> PRT
```

(30)

<213> Homo sapiens

```
<400> 58
Ser Ser Leu Ile Pro Leu Val Ser Ala Gly Leu Leu Val Val
                 5
<210> 59
<211> 15
<212> PRT
<213> Caenorhabditis elegans
<400> 59
Ile Asn Tyr Ala Lys Leu Thr Phe Ala Val Ile Val Leu Thr Ile
                 5
                                     10
<210> 60
<211> 42
<212> DNA
<213> Homo sapiens
<400> 60
agtagectea tteetettgt gagegetgge etgetagtgg te
                                                                          42
<210> 61
<211> 25
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(25)
<223> n is a, t, c, or g.
<400> 61
                                                                          25
tgatgaagat ganannengn ngega
<210> 62
<211> 36
<212> DNA
<213> Homo sapiens
<400> 62
aatgatgaag atgaagatgt gaggcgggaa agacag
                                                                          36
<210> 63
<211> 12
<212> PRT
<213> Homo sapiens
<400> 63
Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln
```



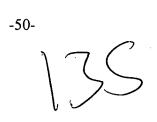
```
<210> 64
<211> 12
<212> PRT
<213> Mus musculus
<400> 64
Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln
<210> 65
<211> 10
<212> PRT
<213> Homo sapiens
<400> 65
Asn Asp Glu Asp Val Arg Arg Glu Arg Gln
                5
<210> 66
<211> 15
<212> PRT
<213> Caenorhabditis elegans
<400> 66
Asp Glu Arg Asp Val Glu Asp Ser Asp Val Ile Ala Glu Lys Ser
                 5
<210> 67
<211> 30
<212> DNA
<213> Homo sapiens
<400> 67
                                                                          30
aatgatgaag atgtgaggcg ggaaagacag
<210> 68
<211> 14
<212> DNA
<213> Homo sapiens
<400> 68
agttgtacga atag
                                                                          14
<210> 69
<211> 14
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(14)
```

	<223> n is	t or c.	
	<400> 69		
	agttgtanga	atag	14
	<210> 70		
	<211> 20		
	<212> DNA		
	<213> Homo	sapiens	
	<400> 70		
	ggctggatta	gcagtcctca	20
	<210> 71		
	<211> 20		
	<212> DNA		
	<213> Homo	sapiens	
•	<400> 71		
	ggatttccca	gatcccagtg	20
	<210> 72		
	<211> 20		
	<212> DNA		
	<213> Homo	sapiens	
	<400> 72		
	gacagacttg	gcatgaagca	20
	<210> 73		
	<211> 20		
	<212> DNA		
1/	<213> Homo	sapiens	
12	<400> 73		
' )	gcacttggca	gtcacttctg	20
•	<210> 74		
	<211> 20		
	<212> DNA		
	<213> Homo	saniens	
		Sapiens	
	<400> 74		
	cgtttctcca	ctgtcccatt	20
	<210> 75		
	<211> 20		
	<212> DNA		
	<213> Homo	sapiens	
	<400> 75		
	acttcaagga	cccagcttcc	20
	<210> 76		

<211> 24 <212> DNA <213> Homo	sapiens	
<400> 76 tcggtttctt	gtttgttaaa ctca	24
<210> 77 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 77 tcccaaggct	ttgagatgac	20
<210> 78 <211> 19 <212> DNA <213> Homo	sapiens	
<400> 78 ggctccaaag	cccttgtaa	19
<210> 79 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 79 gctgctgtga	tggggtatct	20
<210> 80 <211> 25 <212> DNA <213> Homo	sapiens	
<400> 80 tttgtaaatt	ttgtagtgct cctca	25
<210> 81 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 81 tagtcagccc	ttgcctccta	20
<210> 82 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 82 aaaggggctt	ggtaagggta	20

-49-

<210> 83 <211> 20 <212> DNA		
<213> Homo	sapiens	
<400> 83 gatgtggtgc	tccctctagc	20
<210> 84 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 84 caagtgagtg	cttgggattg	20
<210> 85 <211> 21 <212> DNA <213> Homo	sapiens	
<400> 85 gcaaattcaa	atttctccag g	21
<210> 86 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 86 tcaaggagga	aatggacctg	20
<210> 87 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 87 ctgaaagttc	aagcgcagtg	20
<210> 88 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 88 tgcagactga	atggagcatc	20
<210> 89 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 89	04p10110	





gccaggggac actgtattct	20
<210> 90 <211> 20 <212> DNA	
<213> Homo sapiens	
<400> 90 aggtcctctg ccttcactca	20
<210> 91 <211> 20 <212> DNA	
<213> Homo sapiens	
<400> 91 ccagtgctta cccctgctaa	20
<210> 92 <211> 21 <212> DNA	
<213> Homo sapiens	
<400> 92 cacacaacag agcttcttgg a	21
<210> 93 <211> 20 <212> DNA	
<213> Homo sapiens	
<400> 93 acctggaaca ggtgtggtgt	20
<210> 94 <211> 21 <212> DNA	
<213> Homo sapiens	
<400> 94 gggctaacat gccactcagt a	21
<210> 95 <211> 20 <212> DNA	
<213> Homo sapiens	
<400> 95 gtttgttgca gatggggaag	20
<210> 96 <211> 20 <212> DNA	

<213> Homo sapiens





	<400> 96		
	caccagaaga	aggagcatgg	20
•	<210> 97		
	<211> 20		
	<212> DNA		
	<213> Homo	sapiens	
	<400> 97		
	ctggactcgt	agggatttgc	20
	<210> 98		
	<211> 21		
	<212> DNA		
	<213> Homo	saptens	
	<400> 98		
		gagaaatgct t	21
	geergeeaca	gagaaacgcc	
	<210> 99		
	<211> 21		
	<212> DNA		
	<213> Homo	sapiens	
	<400> 99		
	ttacggaatg	atcctgtgct c	21
	<210> 100		
	<211> 20		
	<212> DNA		
	<213> Homo	sapiens	
1	<400> 100		
1/		ccggtcacac	20
151	agccaggccc	ccggccacac	20
	<210> 101		
,	<211> 22		
	<212> DNA		
	<213> Homo	sapiens	
	<400> 101		
	ccgttcctta	tatcctcagg tg	22
	<210> 102		
	<211> 21		
	<212> DNA		
	<213> Homo	sapiens	
	.400. 300		
	<400> 102	agt aggarate a	21
	ccttgtacac	actcgcactg a	21
	<210> 103		
	<211> 20		
	<211> 20 <212> DNA		

-52-

<213> Homo	sapiens	
<400> 103 tgttgtccac	aggttccaga	20
<210> 104 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 104 tgaggtttat	gggcatggtt	20
<210> 105 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 105 atgtttttcc	ttggctgtgc	20
<210> 106 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 106 atctgccctt	tcttgtctga	20
<210> 107 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 107 agggagctgc	acagtggata	20
<210> 108 <211> 24 <212> DNA <213> Homo	sapiens	
<400> 108 tcactcccat	atttcagaac ttga	24
<210> 109 <211> 22 <212> DNA <213> Homo	sapiens	
	aagatcggtg aa	22
~210× 110		

-53-

<211> 25 <212> DNA <213> Homo sapiens	
<400> 110 cgttagagac tgaatctttg tcctg	25
<210> 111 <211> 20 <212> DNA <213> Homo sapiens	
<400> 111 agtcctgcct tccacagttg	20
<210> 112 <211> 21 <212> DNA <213> Homo sapiens	
<400> 112 ggtagttacg tgttaggggc a	21
<210> 113 <211> 21 <212> DNA <213> Homo sapiens	
<400> 113 caggaacatt aggccagatt g	21
<210> 114 <211> 23 <212> DNA <213> Homo sapiens	
<400> 114 catgtatgtg taggacagca tga	23
<210> 115 <211> 21 <212> DNA <213> Homo sapiens	
<400> 115 ctgtttcaaa gatgcttctg c	21
<210> 116 <211> 20 <212> DNA <213> Homo sapiens	
<400> 116 cctaggaagc tggaatgctg	20

<210> 117 <211> 20 <212> DNA	
<213> Homo sapiens	•
<400> 117 gggttcccag ggttcagtat	
<210> 118 <211> 23 <212> DNA	
<213> Homo sapiens	
<400> 118 cttgacctaa tttcaacatc	tgg
<210> 119 <211> 20 <212> DNA	
<213> Homo sapiens	
<400> 119 atccccaact caaaaccaca	
<210> 120 <211> 21	
<212> DNA <213> Homo sapiens	
<400> 120 aagtccaatt tagcccacgt	t
<210> 121 <211> 20	
<212> DNA <213> Homo sapiens	
<400> 121 ccagccattc aaaattctcc	
<210> 122 <211> 20	
<212> DNA <213> Homo sapiens	
<400> 122 ggtgcaggtc aatttccaat	
<210> 123 <211> 20	
<212> DNA <213> Homo sapiens	
<400> 123	

ccccttcacc accattaca	a	. 0
<210> 124 <211> 20 <212> DNA		
<213> Homo sapiens		
<400> 124 tgtccaagga aaagcctca	c 2	: C
<210> 125 <211> 20		
<212> DNA <213> Homo sapiens		
<400> 125 aggacetett gecagaete	a 2	. (
<210> 126	a	•
<211> 20 <212> DNA		
<213> Homo sapiens		
<400> 126 aggagatgac acaggccaa	g 2	О
<210> 127 <211> 20		
<212> DNA <213> Homo sapiens		
<400> 127 cgcacacctc tgaagctac	c 2	C
<210> 128 <211> 20		
<pre>&lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens</pre>		
<400> 128		
acctcactca cacctggga	a 2	0
<210> 129 <211> 20		
<212> DNA <213> Homo sapiens		
<400> 129 gcctcctgcc tgaacctta	t 2	O
<210> 130 <211> 23		
<212> DNA <213> Homo sapiens		

<400> 130 caaaatcatg acaccaagtt gag	23
<210> 131 <211> 20 <212> DNA <213> Homo sapiens	
<400> 131 catgcacatg cacacata	20
<210> 132 <211> 20 <212> DNA <213> Homo sapiens	
<400> 132 ccttagcccg tgttgagcta	20
<210> 133 <211> 21 <212> DNA <213> Homo sapiens	
<400> 133 tgcttttatt cagggactcc a	21
<210> 134 <211> 20 <212> DNA <213> Homo sapiens	
<400> 134 cccatgcact gcagagattc	20
<210> 135 <211> 19 <212> DNA <213> Homo sapiens	
<400> 135 aaggcaggag acatcgctt	19
<210> 136 <211> 20 <212> DNA <213> Homo sapiens	
<400> 136 gggatcagca tggtttccta	20
<210> 137 <211> 20 <212> DNA	

-57-

<213> Homo	sapiens	
<400> 137 gcttaagtcc	cactcctccc	20
<210> 138 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 138	gcatgtgtgt	20
<210> 139 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 139 tcacagaagc	ctagccatga	20
<210> 140 <211> 20 <212> DNA <213> Homo	caniens	
<400> 140	ggagatggtg	20
<210> 141 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 141 tctgcacctc	tcctcctctg	20
<210> 142 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 142 actggggcca	acattaatca	20
<210> 143 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 143 cttccccatc	tgcaacaaac	20
-210- 144		



<211> 20 <212> DNA <213> Homo	sapiens
<400> 144	atccaaagaa
<210> 145 <211> 20 <212> DNA <213> Homo	sapiens
<400> 145	ctgggcataa
<210> 146 <211> 20 <212> DNA	
<213> Homo <400> 146 tctgaagtcc	attcccttgg
<210> 147 <211> 20 <212> DNA	
<213> Homo <400> 147 caatgtggca	tgcagttgat
<210> 148 <211> 19 <212> DNA	
<213> Homo <400> 148 gaagctacca	
<210> 149 <211> 20 <212> DNA	
<213> Homo <400> 149 catttcccc	actgtttcag
<210> 150 <211> 20 <212> DNA	
<213> Homo <400> 150	cttcaatcca

-59-

<210> 151 <211> 20 <212> DNA <213> Homo	caniens	
<400> 151		20
<210> 152 <211> 19 <212> DNA		
<213> Homo	sapiens	
<400> 152 atgcccctgc	caactttac	19
<210> 153 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 153		
	gttcccctac	20
<210> 154 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 154		20
<210> 155 <211> 20 <212> DNA <213> Homo	sapiens	
<400> 155		20
<210> 156 <211> 20 <212> DNA		
<213> Homo	sapiens	
<400> 156 aaggcagtca	gcagtgtcaa	20
<210> 157 <211> 20 <212> DNA		
<213> Homo	sapiens	

2

<400> 157

<pre>&lt;210&gt; 158 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens </pre> <pre>&lt;400&gt; 158 ccattggtga gtgtttcct</pre>	ggggaacatc ctgtgctt	tag	20
<pre>&lt;400&gt; 158 ccattggtga gtgtttccct 20  &lt;210&gt; 159 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 159 agtcagcaaa ctgctgggtt 20 &lt;210&gt; 160 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 160 attgctccat cctggcataa 20 &lt;210&gt; 161 &lt;211&gt; 23 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 161 tcatggatga ttttatgtgc ttc 23 &lt;210&gt; 162 &lt;211&gt; 20 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 161 tcatggatga ttttatgtgc ttc 23 &lt;210&gt; 162 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 162 gcgtgtggaa aagccataag 20 &lt;210&gt; 163 &lt;211&gt; 20 &lt;211&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 163 gccaatcata caacagcct 20 &lt;210&gt; 163 &lt;211&gt; 20 &lt;210&gt; 163 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens &lt;400&gt; 163 gccaatcata caacagcct 20 &lt;210&gt; 163 &lt;211&gt; DNA &lt;213&gt; Homo sapiens &lt;400&gt; 163 gccaatcata caacagcct 20 &lt;210&gt; 164 &lt;211&gt; 20 &lt;210&gt; DNA</pre>	<211> 20		
ccattggtga gtgtttccct 20  <210> 159 <211> 20 <2212> DNA <2213> Homo sapiens  <400> 159 agtcagcaaa ctgctgggtt 20 <210> 160 <211> 20 <211> 20 <212> DNA <213> Homo sapiens  <400> 160 attgctccat cctggcataa 20 <210> 161 <211> 23 <212> DNA <213> Homo sapiens  <400> 161 tcattggatga ttttatgtgc ttc 23 <210> 162 <211> 20 <211> 20 <213> Homo sapiens  <400> 161 tcattggatga ttttatgtgc ttc 23 <210> 162 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 20 <211> 163 <211> 20 <211> 163 <211> 20 <212> DNA <213> Homo sapiens  <400> 163 gcgtgtggaa aagccataag 20 <210> 163 <211> 20 <212> DNA <213> Homo sapiens <400> 163 gccaatcata caacagcct 20 <210> 164 <211> 20 <210> 164 <211> 23 <210> 164 <211> 23 <210> 164 <211> 23 <212> DNA	<213> Homo sapiens		
<pre>&lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens </pre> <pre>&lt;400&gt; 159 agtcagcaaa ctgctgggtt</pre>		cct	20
<pre>&lt;213&gt; Homo sapiens  &lt;400&gt; 159 agtcagcaaa ctgctgggtt 20  &lt;210&gt; 160 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 160 attgctccat cctggcataa 20 &lt;210&gt; 161 &lt;211&gt; 23 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 161 tcatggatga ttttatgtgc ttc 23 &lt;210&gt; 162 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 162 gcgtgtggaa aagccataag 20  &lt;210&gt; 163 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 163 gccaatcata caacagcct 20 &lt;210&gt; 163 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens &lt;400&gt; 163 gccaatcata caacagcct 20 &lt;210&gt; 164 &lt;211&gt; 20 &lt;212&gt; DNA</pre>			
<pre>&lt;400&gt; 159 agtcagcaaa ctgctgggtt 20 &lt;2210&gt; 160 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens &lt;400&gt; 160 attgctccat cctggcataa 20 &lt;210&gt; 161 &lt;211&gt; 23 &lt;212&gt; DNA &lt;213&gt; Homo sapiens &lt;400&gt; 161 tcatggatga ttttatgtgc ttc 23 &lt;210&gt; DNA &lt;211&gt; 20 &lt;210&gt; DNA &lt;211&gt; 20 &lt;211&gt; 20 &lt;211&gt; 20 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens &lt;400&gt; 162 cgctgtggaa aagccataag 20 &lt;210&gt; 163 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens &lt;400&gt; 163 gccaatcata caacagcct 20 &lt;210&gt; 163 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens</pre>			
<pre> &lt;210 &gt; 160 &lt;211 &gt; 20 &lt;212 &gt; DNA &lt;213 &gt; Homo sapiens  &lt;400 &gt; 160 attgctccat cctggcataa</pre>			
<pre>&lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 160 attgctccat cctggcataa</pre>	agtcagcaaa ctgctggg	gtt	20
<pre>&lt;213&gt; Homo sapiens  &lt;400&gt; 160 attgctccat cctggcataa</pre>	<211> 20		
attgetccat cctggcataa 20 <210> 161 <211> 23 <212> DNA <213> Homo sapiens <400> 161 tcatggatga ttttatgtgc ttc 23 <210> 162 <211> 20 <211> DNA <213> Homo sapiens <400> 162 gcgtgtggaa aagccataag 20 <210> 163 <211> 20 <212> DNA <213> Homo sapiens <400> 163 gcgtgtggaa caacaacacccc 20 <210> 163 <211> 20 <212> DNA <213> Homo sapiens <400> 163 <211> 20 <212> DNA <213> Homo sapiens			
<pre>&lt;211&gt; 23 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 161 tcatggatga ttttatgtgc ttc</pre>		taa	20
<pre>&lt;213&gt; Homo sapiens &lt;400&gt; 161 tcatggatga ttttatgtgc ttc</pre>	<211> 23		
tcatggatga ttttatgtgc ttc 23  <210> 162 <211> 20 <212> DNA <213> Homo sapiens  <400> 162 gcgtgtggaa aagccataag 20  <210> 163 <211> 20 <212> DNA <213> Homo sapiens 20  <210> 163 <211> 20 <212> DNA <213> Homo sapiens 20  <210> 164 <211> 20 <210> 164 <211> 23 <212> DNA			
<pre>&lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 162 gcgtgtggaa aagccataag</pre>		tgc ttc	23
<212> DNA <213> Homo sapiens  <400> 162 gcgtgtggaa aagccataag  20  <210> 163 <211> 20 <212> DNA <213> Homo sapiens  <400> 163 gccaatcata caacagccct  20  <210> 164 <211> 23 <212> DNA			
<pre>&lt;400&gt; 162 gcgtgtggaa aagccataag 20 &lt;210&gt; 163 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens </pre> <pre>&lt;400&gt; 163 gccaatcata caacagccct</pre>			
<pre> &lt;210&gt; 163 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;400&gt; 163 gccaatcata caacagccct</pre>			
<211> 20 <212> DNA <213> Homo sapiens  <400> 163 gccaatcata caacagccct 20  <210> 164 <211> 23 <212> DNA		aag	20
<212> DNA <213> Homo sapiens  <400> 163 gccaatcata caacagccct 20  <210> 164 <211> 23 <212> DNA			
<pre>&lt;400&gt; 163 gccaatcata caacagccct 20 &lt;210&gt; 164 &lt;211&gt; 23 &lt;212&gt; DNA</pre>	<212> DNA		
gccaatcata caacagccct 20 <210> 164 <211> 23 <212> DNA			
<211> 23 <212> DNA		act	20
<212> DNA			
<2.13> HOMO Sablens			



<400> 164 tgatcgcata ttctacttgg aaa	2	23
<210> 165 <211> 22 <212> DNA <213> Homo sapiens		
<400> 165 tccctttatt ttagaggcac ca	2	2
<210> 166 <211> 21 <212> DNA <213> Homo sapiens		
<400> 166 gatcaggaat tcaagcacca a	2	1
<210> 167 <211> 24 <212> DNA <213> Homo sapiens		
<400> 167 tgggttccat aatagagttt caca	2	4
<210> 168 <211> 22 <212> DNA <213> Homo sapiens		
<400> 168 tgtcagctgt tactggaagt gg	2	2
<210> 169 <211> 22 <212> DNA <213> Homo sapiens		
<400> 169 tgtcagctgc tgctggaagt gg	2	2
<210> 170 <211> 21 <212> DNA <213> Homo sapiens		
<400> 170 aggagctggc cgaagccaca a	2:	1
<210> 171 <211> 21 <212> DNA		

14)

<213> Homo	sapiens	
<400> 171 aggagctggc	tgaagccaca a	21
<210> 172 <211> 21 <212> DNA <213> Homo	sapiens	
<400> 172 aatgatgcca	ccaaacaaat g	21
<210> 173 <211> 21 <212> DNA <213> Homo	sapiens	
<400> 173 aatgatgcca	tcaaacaaat g	21
<210> 174 <211> 21 <212> DNA <213> Homo	sapiens	
<400> 174 gaggtggctc	cgatgaccac a	21
<210> 175 <211> 21 <212> DNA <213> Homo	sapiens	
<400> 175 gaggtggctc	tgatgaccac a	21
<210> 176 <211> 21 <212> DNA <213> Homo	sapiens	
<400> 176 ttccttaaca	gaaatagtat c	21
<210> 177 <211> 21 <212> DNA <213> Homo	sapiens	
<400> 177 ttccttaaca	aaaatagtat c	21
-210- 170		

<211> 21 <212> DNA <213> Homo sapiens		
<400> 178 ggaagtgttc caaaagagaa	a	21
<210> 179 <211> 21 <212> DNA <213> Homo sapiens		
<400> 179 ggaagtgttc taaaagagaa	a	21
<210> 180 <211> 21 <212> DNA <213> Homo sapiens		
<400> 180 agtaaagagg gactagactt	t .	21
<210> 181 <211> 21 <212> DNA <213> Homo sapiens		
<400> 181 agtaaagagg aactagactt	t	21
<210> 182 <211> 21 <212> DNA <213> Homo sapiens		
<400> 182 gcctacttgc aggatgtggt	g	21
<210> 183 <211> 21 <212> DNA <213> Homo sapiens		
<400> 183 gcctacttgc gggatgtggt	g	21
<210> 184 <211> 23 <212> DNA <213> Homo sapiens		
<400> 184	aca	23

-64-



<210> 185 <211> 20 <212> DNA <213> Homo sapiens	
<400> 185 cctcattcct cttgtgagcg	20
<210> 186 <211> 21 <212> DNA <213> Homo sapiens	
<400> 186 gcaggactac gtgggcttca c	21
<210> 187 <211> 21 <212> DNA <213> Homo sapiens	
<400> 187 gcaggactac atgggcttca c	21
<210> 188 <211> 21 <212> DNA <213> Homo sapiens	
<400> 188 aaaagtctac cgagatggga t	21
<210> 189 <211> 21 <212> DNA <213> Homo sapiens	
<400> 189 aaaagtctac tgagatggga t	21
<210> 190 <211> 21 <212> DNA <213> Homo sapiens	
<400> 190 ggccagatca cctccttcct g	21
<210> 191 <211> 21 <212> DNA	
<213> Homo sapiens	

<400> 191

ggccagatca	tctccttcct	g 2	1
<210> 192 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 192 acacaccaca	tggatgaagc	g 2	1
<210> 193 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 193 acacaccaca	cggatgaagc	g 2	1
<210> 194 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 194 cctggaagaa	gtaagttaag	t 2	1
<210> 195 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 195 cctggaagaa	ctaagttaag	t 2	1
<210> 196 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 196 gctgcctgtg	tgtcccccag	g 2	1
<210> 197 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 197 gctgcctgtg	cgtcccccag	g	1
<210> 198 <211> 22 <212> DNA			
<213> Homo	sapiens		

-66-

<400> 198 tagccattat	ggaattactg	ct	22
<210> 199 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 199 tagccattat	caattactgc	t	21
<210> 200 <211> 26 <212> DNA <213> Homo	sapiens		
<400> 200 gatgaagatg	aagatgtgag (	gcggga	26
<210> 201 <211> 20 <212> DNA <213> Homo	sapiens		
<400> 201 gatgaagatg	tgaggcggga		20
<210> 202 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 202 aatagttgta	cgaatagcag q	3	21
<210> 203 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 203 aatagttgta	tgaatagcag (	9	21
<210> 204 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 204 acacgctggg	ggtgctggct	Ð.	21
<210> 205 <211> 21			

-67-

<213> Homo sapiens	
<400> 205 acacgctggg cgtgctggct g	21
<210> 206 <211> 20 <212> DNA <213> Homo sapiens	
<400> 206 gaccagccac ggcgtccctg	20
<210> 207 <211> 21 <212> DNA <213> Homo sapiens	
<400> 207 gaccagccac gggcgtccct g	21
<210> 208 <211> 22 <212> DNA <213> Homo sapiens	
<400> 208 cattttctta gaaaagagag gt	22
<210> 209 <211> 22 <212> DNA <213> Homo sapiens	
<400> 209 cattttctta gagaagagag gt	22
<210> 210 <211> 21 <212> DNA <213> Homo sapiens	
<400> 210 gaaaattagt atgtaaggaa g	21
<210> 211 <211> 21 <212> DNA <213> Homo sapiens	
<400> 211 gaaaattagt ctgtaaggaa g	21

-68-

<211> 25 <212> DNA <213> Homo	sapiens		
<400> 212 cctccgcctg	ccaggttcag	cgatt	25
<210> 213 <211> 25 <212> DNA <213> Homo	sapiens		
<400> 213 cctccgcctg	ccgggttcag	cgatt	25
<210> 214 <211> 25 <212> DNA <213> Homo	sapiens		
<400> 214 tatgtgctga	ccatgggagc	ttgtt	25
<210> 215 <211> 25 <212> DNA <213> Homo	sapiens		
<400> 215 tatgtgctga	ccgtgggagc	ttgtt	25
<210> 216 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 216 gtgacaccca	acggagtagg	g	21
<210> 217 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 217 gtgacaccca	gcggagtagg	g	21
<210> 218 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 218 agtatccctt	gttcacgaga	a	21

SH

<210> 219 <211> 25 <212> DNA <213> Homo sapiens	
<400> 219 agtatecete cettgtteac gagaa	25
<210> 220 <211> 21 <212> DNA <213> Homo sapiens	
<400> 220 ctgggttcct gtatcacaac c	21
<210> 221 <211> 21 <212> DNA <213> Homo sapiens	
<400> 221 ctgggttcct atatcacaac c	21
<210> 222 <211> 21 <212> DNA <213> Homo sapiens	
<400> 222 ggcctaccaa gggagaaact g	21
<210> 223 <211> 21 <212> DNA <213> Homo sapiens	
<400> 223 ggcctaccaa aggagaaact g	21
<210> 224 <211> 20 <212> DNA <213> Homo sapiens	
<400> 224 tttaaagggg gtgattagga	20
<210> 225 <211> 20 <212> DNA <213> Homo sapiens	
<400> 225	

\SS

tttaaagggg	ttgattagga		20
<210> 226 <211> 22 <212> DNA			
<213> Homo	sapiens		
<400> 226 gaagaaattt	gtttttttga	tt .	22
<210> 227 <211> 22 <212> DNA			
<213> Homo	sapiens		
<400> 227 gaagaaattt	tttttttga	tt	22
<210> 228 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 228 gcgggcatcc	cgagggaggg	g	21
<210> 229 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 229 gcgggcatcc	tgagggaggg	g	21
<210> 230 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 230 agggagggg	gctgaagatc	a	21
<210> 231 <211> 21 <212> DNA			
<213> Homo	sapiens	·	
<400> 231 agggaggggg	actgaagatc	a	21
<210> 232 <211> 20 <212> DNA			
<213> Homo	sapiens		

<400> 232 aggagccaaa cgctcattgt	20
<210> 233 <211> 21 <212> DNA <213> Homo sapiens	
<400> 233 aggagecaaa gegeteattg t	21
<210> 234 <211> 21 <212> DNA <213> Homo sapiens	
<400> 234 aagccactgt ttttaaccag t	21
<210> 235 <211> 21 <212> DNA <213> Homo sapiens	
<400> 235 aagccactgt atttaaccag t	21
<210> 236 <211> 21 <212> DNA <213> Homo sapiens	
<400> 236 cgtgggcttc acactcaaga t	21
<210> 237 <211> 21 <212> DNA <213> Homo sapiens	
<400> 237 cgtgggcttc ccactcaaga t	21
<210> 238 <211> 21 <212> DNA <213> Homo sapiens	
<400> 238 tcacactcaa gatcttcgct g	21
<210> 239 <211> 21	

<213> Homo sapiens		
<400> 239 tcacactcaa catcttcgct	g	21
<210> 240 <211> 21 <212> DNA <213> Homo sapiens		
<400> 240 gcagcctcac ccgctcttcc	c :	21
<210> 241 <211> 21 <212> DNA <213> Homo sapiens		
<400> 241 gcagcctcac tcgctcttcc	c	21
<210> 242 <211> 21 <212> DNA <213> Homo sapiens		
<400> 242 agaagagaat atcagaaatc	t :	21
<210> 243 <211> 21 <212> DNA <213> Homo sapiens		
<400> 243 agaagagaat gtcagaaatc	t :	21
<210> 244 <211> 21 <212> DNA <213> Homo sapiens		
<400> 244 gcgcagtgcc ctgtgtcctt	a 2	21
<210> 245 <211> 21 <212> DNA <213> Homo sapiens		
<400> 245 gcgcagtgcg ctgtgtcctt	a :	21
<210> 246		

<211> 21 <212> DNA <213> Homo sapiens		
<400> 246 gatctaaggt tgtcattctg	g	21
<210> 247 <211> 21 <212> DNA <213> Homo sapiens		
<400> 247 gatctaaggt ggtcattctg	g	21
<210> 248 <211> 23 <212> DNA <213> Homo sapiens		
<400> 248 ctcttctgtt agcacagaag	aga	23
<210> 249 <211> 23 <212> DNA <213> Homo sapiens		
<400> 249 ctcttctgtt atcacagaag	aga	23
<210> 250 <211> 21 <212> DNA <213> Homo sapiens		
<400> 250 cattctaggg atcatagcca	t	21
<210> 251 <211> 21 <212> DNA <213> Homo sapiens		
<400> 251 cattctaggg gtcatagcca	t	21
<210> 252 <211> 22 <212> DNA <213> Homo sapiens		
<400> 252	ca	22

<210> 253 <211> 22 <212> DNA			
<213> Homo	sapiens		
<400> 253 aagtacagtg	tgaggaacag	cg	22
<210> 254 <211> 22 <212> DNA			
<213> Homo	sapiens		
<400> 254 attcctaaaa	aatagaaatg	ca 2	22
<210> 255 <211> 22 <212> DNA			
<213> Homo	sapiens		
<400> 255 attcctaaaa	agtagaaatg	ca	22
<210> 256 <211> 21 <212> DNA <213> Homo	sapiens		
<400> 256	ttattattac	t	21
<210> 257 <211> 21 <212> DNA			
<213> Homo	sapiens		
<400> 257 ggcccctgcc	gtattattac	t :	21
<210> 258 <211> 22 <212> DNA <213> Homo	sapiens	c c	
<400> 258			22
	acttgaaccc	99	5 Z
<210> 259 <211> 22 <212> DNA <213> Homo	canienc		
ZIJ/ NUMO	Pahrens		

<400> 259

tga	gagaatt	gcttgaaccc	gg	22
<21 <21	0 > 260 1 > 21 2 > DNA	sapiens		
		Sapiciis		
	0> 260 gctgaaa	caatcactga	С	21
<21 <21	0 > 261 1 > 21 2 > DNA 3 > Homo	sapiens		
	0> 261 gctgaaa	taatcactga	С	21
<21	0> 262 1> 22 2> DNA			
<21	3> Homo	sapiens		
	0> 262 ctcagtt	ccctcatctg	tg	22
<21 <21	0 > 263 1 > 22 2 > DNA 3 > Homo	sapiens		
<40	0> 263	tcctcatctg	tg	22
<21	0> 264 1> 21 2> DNA			
<21	3> Homo	sapiens		
_	0> 264 gacacca	gaaataatgt	С	21
<21 <21	0> 265 1> 21 2> DNA	·		
		sapiens		
	0> 265 gacacca	aaaataatgt	С	21
<21 <21	0> 266 1> 21 2> DNA			
<21	3 > Homo	sapiens		

16/

<400> 266 tcctatgtgt cctccacca	a t	<b>\</b>	21
<210> 267 <211> 21 <212> DNA <213> Homo sapiens			•
<400> 267 tcctatgtgt gctccacca	a t		21
<210> 268 <211> 21 <212> DNA <213> Homo sapiens			
<400> 268 aagaagtggc ttgtatttt	g c		21
<210> 269 <211> 21 <212> DNA <213> Homo sapiens			
<400> 269 aagaagtggc ctgtatttt	g c		21
<210> 270 <211> 23 <212> DNA <213> Homo sapiens			
<400> 270 aactgatttg attggtata	g ctg		23
<210> 271 <211> 23 <212> DNA <213> Homo sapiens			
<400> 271 aactgatttg gttggtata	g ctg		23
<210> 272 <211> 21 <212> DNA <213> Homo sapiens			
<400> 272 cagggtccaa cccggacct	g a		21
<210> 273 <211> 21 <212> DNA		•	

<213> Homo sapiens
<400> 273 cagggtccaa tccggacctg a 21
<210> 274 <211> 22 <212> DNA <213> Homo sapiens
<400> 274 ttgggaggct aaggcaggag aa 22
<210> 275 <211> 22 <212> DNA <213> Homo sapiens
<400> 275 ttgggaggct gaggcaggag aa 22
<210> 276 <211> 15 <212> DNA <213> Gallus gallus
<400> 276 accaggggaa tetec 15
<210> 277 <211> 15 <212> DNA <213> Gallus gallus
<400> 277 accagggaaa tctcc 15
<210> 278 <211> 45 <212> DNA <213> Gallus gallus
<400> 278 cgctacccaa caccagggga atctcctggt attgttggaa acttc 45
<210> 279 <211> 15 <212> PRT <213> Homo sapiens
<pre>&lt;400&gt; 279 Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn Phe 1</pre>



```
<210> 280
<211> 15
<212> PRT
<213> Mus musculus
<400> 280
Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn Phe
<210> 281
<211> 15
<212> PRT
<213> Gallus gallus
<400> 281
Arg Tyr Pro Thr Pro Gly Glu Ser Pro Gly Ile Val Gly Asn Phe
                                     10
<210> 282
<211> 15
<212> PRT
<213> Gallus gallus
<400> 282
Arg Tyr Pro Thr Pro Gly Lys Ser Pro Gly Ile Val Gly Asn Phe
<210> 283
<211> 45
<212> DNA
<213> Gallus gallus
<400> 283
                                                                          45
cgctacccaa caccagggaa atctcctggt attgttggaa acttc
<210> 284
<211> 19
<212> DNA
<213> Homo sapiens
<400> 284
gcgtcaggga tggggacag
                                                                          19
<210> 285
<211> 20
<212> DNA
<213> Homo sapiens
<400> 285
```

20

gcgtcaggga ttggggacag

<210> 286	
<211> 17	
<212> DNA	
<213> Homo	sapiens
<400> 286	
ccacttcggt	ctccatg
<210> 287	
<211> 17	
<212> DNA	
<213> Homo	sapiens
<400> 287	
ccacttcgat	ctccatq